## SEQUENCE LISTING

<110> Jensen, Wayne A. Lappin, Michael R. Rosen, David K. Andrews, Janet S. <120> USE OF RECOMBINANT ANTIGENS TO DETERMINE THE IMMUNE STATUS OF AN ANIMAL <130> DI-9-1 <140> not yet assigned <141> 2003-09-22 <140> 09/521,738 <141> 2000-03-09 <160> 36 <170> PatentIn Ver. 2.1 <210> 1 <211> 2013 <212> DNA <213> Feline calicivirus <220> <221> CDS <222> (1)..(2013) <400> 1 atg tgc tca acc tgc gct aac gtg ctt aaa tat tat gat tgg gac ccc 48 Met Cys Ser Thr Cys Ala Asn Val Leu Lys Tyr Tyr Asp Trp Asp Pro 10 cat ttc aaa ttg gta atc aac ccc aac aac ttc ctc tct gtt ggc ttt 96 His Phe Lys Leu Val Ile Asn Pro Asn Asn Phe Leu Ser Val Gly Phe 25 30 tgt agt aac cct tta atg tgt tgc tac cca gaa ctc ctt ccg gaa ttt 144 Cys Ser Asn Pro Leu Met Cys Cys Tyr Pro Glu Leu Leu Pro Glu Phe 35 40 gga act gtt tgg gat tgc gat cgg tca cca ctt gaa att tac cta gaa 192 Gly Thr Val Trp Asp Cys Asp Arg Ser Pro Leu Glu Ile Tyr Leu Glu 50 55 tca ata ctt ggt gat gat gaa tgg gca tcc act ttt gac gct gtt gac 240 Ser Ile Leu Gly Asp Asp Glu Trp Ala Ser Thr Phe Asp Ala Val Asp 65 70 75 cca gtc gtt ccc cca atg cac tgg ggt gct gct gga aaa att ttc cag 288 Pro Val Val Pro Pro Met His Trp Gly Ala Ala Gly Lys Ile Phe Gln cca cac ccc ggt gtt ctc atg cac cat ctc att ggt aag gtt gct gca 336

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					gag Glu											432
					atg Met 150											480
					tgg Trp											528
		_			gaa Glu				_							576
					aac Asn				_			_	_			624
-	-				tcg Ser			_								672
					aag Lys 230											720
					act Thr								_	_		768
	-	_	_		gaa Glu		_			_			_		~	816
_		_			ctt Leu	_		-		_				_	•	864
	-				gat Asp						-		_	_		912
					gtc Val 310											960
					aag Lys											1008
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		34	0	- 110	110	пуs	345	s se	r Se	er Le	eu T	rp I:	le G 50	gt aac ly Asn	L
	35	5		. 110	1111	360	PHE	va.	T TT	e Ar	g Pi 36	co Pl 55	ie Va	tc ttc al Phe	
	ca aa la As 70	t cg: n Arç	t cat g His	ttt Phe	gac Asp 375	ttt Phe	aat Asn	caa Gli	a ga n Gl	g ac u Th 38	r Al	a gg .a Gl	gg to Y Ti	gg agc op Ser	1152
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gca aa Ala Ly	a ttg s Lei	ı Gly	att Ile 405	Gl <sup>A</sup> aaa	gtg Val	gca Ala	aca Thr	gat Asp 410	, LA	c at	a gt e Va	g cc l Pr	t gg o Gl 41	y Ile	1248
cct ga Pro As	t ggo p Gly	tgg Trp 420	0	gac Asp	acc Thr	aca Thr	att Ile 425	cct Pro	GJ <sup>7</sup> aaa	g gaq 7 Glu	g ttg 1 Lei	g ata u Ila 43	e Pr	a gct o Ala	1296
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aca gga Thr Gly 450	a tat y Tyr )	gac Asp	act Thr	nia i	gat a Asp 1 455	ata Ile	att Ile	aag Lys	aac Asn	aat Asn 460	Thr	aac Asr	ttt Phe	agg Arg	1392
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tct gat Ser Asp 545	agg Arg	gac ( Asp <i>1</i>	9 v	tt g al Va 50	tg co	gc a rg I	tc a le S	er '	act Thr :	ctc Leu	cct Pro	gaa Glu	act Thr	ggt Gly 560	1680

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gga Gly	ı tat Tyr	gt. Va	a at 1 I1 58	e AT	g tc g Se:	t att r Ile	E ga	t gto p Val 585	. Phe	t aa e Ası	t tc	a caa	a ato n Ile 590	e Le	g cac u His	1776
act Thr	tcc Ser	aga Arg 59!	a GTI	g tta n Lei	a tog 1 Sei	g cta Lev	a aat a Asi 600	n His	tac Tyr	c cta	a cto ı Len	c cca u Pro 605	Pro	ga As	t tct p Ser	1824
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gga Gly 625	att Ile	gat Asp	agt Ser	gat Asp	ggg Gly 630	rne	tct Ser	ttt Phe	gtt Val	ggt Gly 635	v Val	tct Ser	ggc Gly	tt: Phe	ggt Gly 640	1920
aa <b>a</b> Lys	tta Leu	ga <i>a</i> Glu	ttt Phe	Pro 645	ьтеп	tct Ser	gcc Ala	tcc Ser	tac Tyr 650	Met	gga Gly	ata Ile	caa Gln	tto Let 655	gca Ala	1968
aag Lys	atc Ile	cgg Arg	ctt Leu 660	Ата	tct Ser	aac Asn	att Ile	agg Arg 665	agt Ser	ccc Pro	atg Met	act Thr	aag Lys 670	tta Leu	l i	2013
<212	l> 67 ?> PF	RТ	e ca	lici <sup>.</sup>	viru	S										
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His	Phe	Lys	Leu 20	Val	Ile	Asn	Pro	Asn 25	Asn	Phe	Leu	Ser	Val 30	Gly	Phe	
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Pro '	Val '	Val	Pro	Pro 85	Met	His	Trp	Gly	Ala 90	Ala	Gly	Lys	Ile	Phe 95	Gln	
Pro 1	His 1	Pro	Gly 100	Val	Leu	Met :	His	His 105	Leu	Ile	Gly	Lys	Val . 110	Ala	Ala	

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- Thr Leu Ala Leu Leu Gly Tyr Thr Gly Ile Gly Glu Gln Ala Ile Gly 530 535 540
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<sup>&</sup>lt;210> 3

<sup>&</sup>lt;211> 1641

<sup>&</sup>lt;212> DNA

<sup>&</sup>lt;213> Feline calicivirus

<sup>&</sup>lt;220>

<sup>&</sup>lt;221> CDS

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1	1132	, voř	o GI	i A per	2 116	e Tni	r Ala	a Pro	0 Glu 10	ı Glı	n Gl	y Thi	r Me	t Va 1	l Gly 5	
Cly	vai	110	20	)	Pro	sei	C Ala	25 25	ı Met	Se <sub>1</sub>	r Thi	r Alá	a Ala	a As <sub>l</sub>	t atg p Met	96
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gct Ala	aag Lys	cta Leu	tat Tyr	gtt Val 85	gcg Ala	tgg Trp	tct Ser	gly	tcg Ser 90	att Ile	gag Glu	gtt Val	agg Arg	tto Phe 95	tct Ser	288
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cct ( Pro	cct Pro	ggg Gly 115	gtt Val	gat Asp	cca Pro	gtg Val	cag Gln 120	agt Ser	act Thr	tcg Ser	atg Met	cta Leu 125	caa Gln	tac Tyr	ccc Pro	384
cat o	gtt Val 130	ttg Leu	ttt Phe	gat Asp	gct Ala	cgt Arg 135	cag Gln	gtg Val	gaa Glu	cca Pro	gtt Val 140	atc Ile	ttc Phe	tgt Cys	ctt Leu	432
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Try   11e Gly Asn Arg Tyr Trp Ser Asp   11e Thr Asp Phe Val   11e Arg 230   230   240																			
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gaa cag aac gga gca aaa ttg ggc att ggg gtg gca aac gat tac ata 275					24	5	u ns	11 AI	g n	1S F 2	250	Asp	) Ph	e As	sn G	ln (	31u 255	Thr	768
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ttg ata cca gct ggt gat tac gca atc acc acc acc acc acc acc acc acc a			275			. <u>.</u> .	э пес	28	0 A TI	.е G	тХ	Val	Αlā	a Th 28	r As 5	r q	уr	Ile	864
atc acc acg gct aca gga tat gac act gct gat ata att aag acc act tag gg gcd atg gct y gct gat aag aca att tcc acc act gct gct gct cac cac act gct gat ata att aag acc act tag gcd acc acc tag gct y gct gct gct gct gct gct aca act tag gcd acc acc tag gct gct gct gct gct gct gct gct acc acc tag gct gct gct gct gct gct gct gct gct gc		290				, ust	295	5	p Pr	O A	sp '	Thr	Thr 300	: Il	e Pr	o G	ly	Glu	912
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gat ggt gac aac aac aac aag atc ccc tgt aat acc ata gac cag life Asp Pro Cys Asp Asp Asp Asp Asp Asp Asp Asp Asp As	acc a Thr A	aac Asn	ttt Phe	9	ggc Gly	atg Met	tac Tyr	ata Ile	СУ	3 GI	ıt t y S	cg Ser	ctc Leu	cag Gln	Arg	J A]	cc .a '	tgg Trp	1056
tca aag atc gtc gtg ttt caa gac aac cat gtt gga aag aaa gcg caa 1200  Ser Lys Ile Val Val Phe Gln Asp Asn His Val Gly Lys Lys Ala Gln 390 395 400  acc tca gac gat aca ttg gcc ctg ctt ggt tac act ggt ggg agg 1248  Thr Ser Asp Asp Thr Leu Ala Leu Leu Gly Tyr Thr Gly Ile Gly Glu 415  cag gcc atc ggg tct gat agg gac cgg gtt gtg cgc atc.agc act ctc 1296  Gln Ala Ile Gly Ser Asp Arg Asp Arg Val Val Arg Ile Ser Thr Leu 420 425 430  cct gaa act ggt gct cga ggc ggt aac cac cca att ttc tac aag aac 1344  Pro Glu Thr Gly Ala Arg Gly Gly Asn His Pro Ile Phe Tyr Lys Asn	ggt g Gly A		-2	aaa Lys	att Ile	tcc Ser	aac Asn	THE	ATS	tt Ph	t a e I	tc . le'	acc Thr	Thr	gco Ala	ac a Th	c d	cta Leu	1104
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435 And Alg Gly Ash His Pro Ile Phe Tyr Lys Ash	cag go Gln Al	cc a la I		1	tct ( Ser /	gat Asp	agg Arg	gac Asp	Arg	gtt Val	gt Va	g c	gc rg	Ile	Ser	act Thi	C C	tc eu	1296
	cct ga Pro Gl	aa a .u Ti 4:	ct g hr G 35	gt g Hy A	gct d Ala <i>B</i>	cga Arg (	gră (	GIA	aac Asn	cac His	cc Pr	a a o I	le 1	Phe	tac Tyr	aag Lys	a A	ac sn	1344

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-				500	)	у та	.C .	rsb	ser	505		Phe	e Ser	. Ph	e Va 51	0	Gly	Va]	Ĺ
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Pro Pro Gly Val Asp Pro Val Gln Ser Thr Ser Met Leu Gln Tyr Pro 120 His Val Leu Phe Asp Ala Arg Gln Val Glu Pro Val Ile Phe Cys Leu 135 Pro Asp Leu Arg Ser Thr Leu Tyr His Leu Met Ser Asp Thr Asp Thr 150 155 Thr Ser Leu Val Ile Met Val Tyr Asn Asp Leu Ile Asn Pro Tyr Ala 170 Asn Asp Ala Asn Ser Ser Gly Cys Ile Val Thr Val Glu Thr Lys Pro Gly Pro Asp Phe Lys Phe His Leu Leu Lys Pro Pro Gly Ser Met Leu 200 205 Thr His Gly Ser Ile Pro Ser Asp Leu Ile Pro Lys Thr Ser Ser Leu 215 Trp Ile Gly Asn Arg Tyr Trp Ser Asp Ile Thr Asp Phe Val Ile Arg 230 235 Pro Phe Val Phe Gln Ala Asn Arg His Phe Asp Phe Asn Gln Glu Thr 245 250 Ala Gly Trp Ser Thr Pro Arg Phe Arg Pro Ile Ser Val Thr Ile Thr 265 Glu Gln Asn Gly Ala Lys Leu Gly Ile Gly Val Ala Thr Asp Tyr Ile 275 Val Pro Gly Ile Pro Asp Gly Trp Pro Asp Thr Thr Ile Pro Gly Glu 295 Leu Ile Pro Ala Gly Asp Tyr Ala Ile Thr Asn Gly Thr Gly Asn Asp 305 310 315 Ile Thr Thr Ala Thr Gly Tyr Asp Thr Ala Asp Ile Ile Lys Asn Asn 330 Thr Asn Phe Arg Gly Met Tyr Ile Cys Gly Ser Leu Gln Arg Ala Trp 345 Gly Asp Lys Lys Ile Ser Asn Thr Ala Phe Ile Thr Thr Ala Thr Leu 360 365 Asp Gly Asp Asn Asn Asn Lys Ile Asn Pro Cys Asn Thr Ile Asp Gln 375 Ser Lys Ile Val Val Phe Gln Asp Asn His Val Gly Lys Lys Ala Gln 385 390 395 Thr Ser Asp Asp Thr Leu Ala Leu Leu Gly Tyr Thr Gly Ile Gly Glu 405 410

Gln Ala Ile Gly Ser Asp Arg Asp Arg Val Val Arg Ile Ser Thr Leu 425 Pro Glu Thr Gly Ala Arg Gly Gly Asn His Pro Ile Phe Tyr Lys Asn 440 Ser Ile Lys Leu Gly Tyr Val Ile Arg Ser Ile Asp Val Phe Asn Ser 455 Gln Ile Leu His Thr Ser Arg Gln Leu Ser Leu Asn His Tyr Leu Leu 470 475 Pro Pro Asp Ser Phe Ala Val Tyr Arg Ile Ile Asp Ser Asn Gly Ser Trp Phe Asp Ile Gly Ile Asp Ser Asp Gly Phe Ser Phe Val Gly Val 500 505 Ser Gly Phe Gly Lys Leu Glu Phe Pro Leu Ser Ala Ser Tyr Met Gly 520 Ile Gln Leu Ala Lys Ile Arg Leu Ala Ser Asn Ile Arg Ser Pro Met 535 Thr Lys Leu 545 <210> 5 <211> 1752 <212> DNA <213> Feline parvovirus <220> <221> CDS <222> (1)..(1752) <400> 5 atg agt gat gga gca gtt caa cca gac ggt ggt caa cct gct gtc aga Met Ser Asp Gly Ala Val Gln Pro Asp Gly Gln Pro Ala Val Arg 1 aat gaa aga gct aca gga tct ggg aac ggg tct gga ggc ggg ggt ggt 96 Asn Glu Arg Ala Thr Gly Ser Gly Asn Gly Ser Gly Gly Gly Gly 20 ggt ggt tct ggg ggt gtg ggg att tct acg ggt act ttc aat aat cag 144 Gly Gly Ser Gly Gly Val Gly Ile Ser Thr Gly Thr Phe Asn Asn Gln acg gaa ttt aaa ttt ttg gaa aac ggg tgg gtg gaa atc aca gca aac 192 Thr Glu Phe Lys Phe Leu Glu Asn Gly Trp Val Glu Ile Thr Ala Asn tca agc aga ctt gta cat tta aat atg cca gaa agt gaa aat tat aaa Ser Ser Arg Leu Val His Leu Asn Met Pro Glu Ser Glu Asn Tyr Lys

65	ı				70					75	5				80	
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gct Ala	tta Leu	gat Asp	gat Asp 100	Ile	cat His	gta Val	caa Gln	att Ile 105	Val	aca Thr	cct Pro	tgg Trp	tca Ser 110	Leu	gtt Val	336
gat Asp	gca Ala	aat Asn 115	Ala	tgg Trp	gga Gly	gtt Val	tgg Trp 120	Phe	aat Asn	cca Pro	gga Gly	gat Asp 125	Trp	caa Gln	cta Leu	384
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att Ile 145	ttt Phe	aat Asn	gtt Val	gtt Val	tta Leu 150	aag Lys	act Thr	gtt Val	tca Ser	gaa Glu 155	tct Ser	gct Ala	act Thr	cag Gln	cca Pro 160	480
cca Pro	act Thr	aaa Lys	gtt Val	tat Tyr 165	aat Asn	aat Asn	gat Asp	tta Leu	act Thr 170	gca Ala	tca Ser	ttg Leu	atg Met	gtt Val 175	gca Ala	528
tta Leu	gat Asp	agt Ser	aat Asn 180	aat Asn	act Thr	atg Met	cca Pro	ttt Phe 185	act Thr	cca Pro	gca Ala	gct Ala	atg Met 190	aga Arg	tct Ser	576
gag Glu	aca Thr	ttg Leu 195	ggt Gly	ttt Phe	tat Tyr	cca Pro	tgg Trp 200	aaa Lys	cca Pro	acc Thr	ata Ile	cca Pro 205	act Thr	cca Pro	tgg Trp	624
aga Arg	tat Tyr 210	tat Tyr	ttt Phe	caa Gln	tgg Trp	gat Asp 215	aga Arg	aca Thr	tta Leu	ata Ile	cca Pro 220	tct Ser	cat His	act Thr	gga Gly	672
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tgt Cys	aga Arg	tta Leu 275	aca Thr	cat His	aca Thr	$\mathtt{Trp}$	caa Gln 280	aca Thr	aat Asn	aga Arg	Ala	ttg Leu 285	ggc Gly	tta Leu	cca Pro	864
cca Pro	ttt Phe 290	tta Leu	aat Asn	tct Ser	Leu	cct Pro 295	caa Gln	tct Ser	gaa Glu	Gly	gct Ala 300	act Thr	aac Asn	ttt Phe	ggt Gly	912

305	2 5 TTE	e GTZ	/ Val	. Glr	310	ı Asp	) Lys	arg	g Arg	315	v Val	l Thi	Glr	n Met	g gga Gly 320	960
ASI	i Tili	Asp	) Tyr	325	Thr	Glu	ı Ala	Thr	330	Met	: Arg	y Pro	Ala	335		1008
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Thr	Asp	cca Pro 435	lle	GIY	Gly	Lys	Thr 440	Gly	Ile	Asn	Tyr	Thr 445	Asn	Ile	Phe	1344
ASN	450	tat Tyr	GIĀ	Pro	Leu	Thr 455	Ala	Leu	Asn	Asn	Val 460	Pro	Pro	Val	Tyr	1392
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Arg	Leu	cat His	Val	Asn 485	Ala	Pro	Phe	Val	Cys 490	Gln	Asn	Asn	Cys	Pro 495	Gly	1488
GIII	ьеu		va1 500	гàг	Vai	Ala	Pro	Asn 505	Leu	Thr	Asn	Glu	Туr 510	Asp	Pro	1536
gat Asp	Ala	tct Ser 515	gct Ala	aat Asn	atg Met	Ser	aga Arg 520	att Ile	gta Val	act Thr	tat Tyr	tca Ser 525	gat Asp	ttt Phe	tgg Trp	1584

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tat gta cca aat aat att gga gct atg aaa att gta tat gaa Tyr Val Pro Asn Asn Ile Gly Ala Met Lys Ile Val Tyr Glu 565 570	aaa tct 1728 Lys Ser 575
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Thr Glu Phe Lys Phe Leu Glu Asn Gly Trp Val Glu Ile Thr i 50 55 60	Ala Asn
Ser Ser Arg Leu Val His Leu Asn Met Pro Glu Ser Glu Asn 76 75	Tyr Lys 80
Arg Val Val Val Asn Asn Met Asp Lys Thr Ala Val Lys Gly A 85 90	Asn Met 95
Ala Leu Asp Asp Ile His Val Gln Ile Val Thr Pro Trp Ser I 100 105 110	eu Val
Asp Ala Asn Ala Trp Gly Val Trp Phe Asn Pro Gly Asp Trp G 115 120 125	In Leu
Ile Val Asn Thr Met Ser Glu Leu His Leu Val Ser Phe Glu G 130 135 140	ln Glu
Ile Phe Asn Val Val Leu Lys Thr Val Ser Glu Ser Ala Thr G 145 150 155	ln Pro 160
Pro Thr Lys Val Tyr Asn Asn Asp Leu Thr Ala Ser Leu Met Va 165 170 1	al Ala 75
Leu Asp Ser Asn Asn Thr Met Pro Phe Thr Pro Ala Ala Met An	rg Ser

- Glu Thr Leu Gly Phe Tyr Pro Trp Lys Pro Thr Ile Pro Thr Pro Trp 195 200 205
- Arg Tyr Tyr Phe Gln Trp Asp Arg Thr Leu Ile Pro Ser His Thr Gly 210 215 220
- Thr Ser Gly Thr Pro Thr Asn Val Tyr His Gly Thr Asp Pro Asp Asp 225 230 235 240
- Val Gln Phe Tyr Thr Ile Glu Asn Ser Val Pro Val His Leu Leu Arg
  245 250 255
- Thr Gly Asp Glu Phe Ala Thr Gly Thr Phe Phe Phe Asp Cys Lys Pro 260 265 270
- Cys Arg Leu Thr His Thr Trp Gln Thr Asn Arg Ala Leu Gly Leu Pro 275 280 285
- Pro Phe Leu Asn Ser Leu Pro Gln Ser Glu Gly Ala Thr Asn Phe Gly 290 295 300
- Asp Ile Gly Val Gln Gln Asp Lys Arg Arg Gly Val Thr Gln Met Gly 305 310 315 320
- Asn Thr Asp Tyr Ile Thr Glu Ala Thr Ile Met Arg Pro Ala Glu Val 325 330 335
- Gly Tyr Ser Ala Pro Tyr Tyr Ser Phe Glu Ala Ser Thr Gln Gly Pro 340 345 350
- Phe Lys Thr Pro Ile Ala Ala Gly Arg Gly Gly Ala Gln Thr Asp Glu 355 360 365
- Asn Gln Ala Ala Asp Gly Asp Pro Arg Tyr Ala Phe Gly Arg Gln His 370 375 380
- Gly Gln Lys Thr Thr Thr Gly Glu Thr Pro Glu Arg Phe Thr Tyr 385 390 395 400
- Ile Ala His Gln Asp Thr Gly Arg Tyr Pro Glu Gly Asp Trp Ile Gln 405 410 415
- Asn Ile Asn Phe Asn Leu Pro Val Thr Asn Asp Asn Val Leu Leu Pro 420 425 430
- Thr Asp Pro Ile Gly Gly Lys Thr Gly Ile Asn Tyr Thr Asn Ile Phe 435 440 445
- Asn Thr Tyr Gly Pro Leu Thr Ala Leu Asn Asn Val Pro Pro Val Tyr 450 455 460
- Pro Asn Gly Gln Ile Trp Asp Lys Glu Phe Asp Thr Asp Leu Lys Pro 465 470 475 480
- Arg Leu His Val Asn Ala Pro Phe Val Cys Gln Asn Asn Cys Pro Gly

485	490	495
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Gln Leu Phe Val Lys Val Ala Pro Asn Leu Thr Asn Glu Tyr Asp Pro 500 505 510

Asp Ala Ser Ala Asn Met Ser Arg Ile Val Thr Tyr Ser Asp Phe Trp 515 520 525

Trp Lys Gly Lys Leu Val Phe Lys Ala Lys Leu Arg Ala Ser His Thr 530 540

Trp Asn Pro Ile Gln Gln Met Ser Ile Asn Val Asp Asn Gln Phe Asn 545 550 555 560

Tyr Val Pro Asn Asn Ile Gly Ala Met Lys Ile Val Tyr Glu Lys Ser 565 570 575

Gln Leu Ala Pro Arg Lys Leu Tyr 580

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<213> Feline parvovirus

<220>

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Pro Val His Leu Leu Arg Thr Gly Asp Glu Phe Ala Thr Gly Thr Phe
20 25 30

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Phe Phe Asp Cys Lys Pro Cys Arg Leu Thr His Thr Trp Gln Thr Asn
35 40 45

aga gca ttg ggc tta cca cca ttt tta aat tct ttg cct caa tct gaa 192
Arg Ala Leu Gly Leu Pro Pro Phe Leu Asn Ser Leu Pro Gln Ser Glu
50 55 60

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atg aga cca gct gag gtt ggt tat agt gca cca tat tat tct ttt gaa 336

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gca Ala 145	ttt Phe	ggt Gly	aga Arg	caa Gln	cat His 150	ggt Gly	caa Gln	aaa Lys	act Thr	act Thr 155	aca Thr	aca Thr	gga Gly	gaa Glu	aca Thr 160	480
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gat Asp	aat Asn	gta Val 195	ttg Leu	cta Leu	cca Pro	aca Thr	gat Asp 200	cca Pro	att Ile	ggg ggg	ggt Gly	aaa Lys 205	aca Thr	gga Gly	att Ile	624
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Ası	n Pro	Se:	r As <sub>l</sub>	p Al	a Ala	a Ala	a Lys 4(	s Glu	ı Hi:	s Ası	o Gli	ı Ala 4		r Ala	a Ala	
tat Tyi	ctt Let 50	ı Arç	tci g Se:	t gg r Gl	t aaa y Lys	a aac s Asr 55	ı Pro	tac Tyr	tta Lei	a tai	t tto Phe	e Sei	g cca Pro	a gca o Ala	a gat a Asp	192
caa Glr 65	TUTE	ttt g Phe	ata e Ile	a gat e Asp	caa Glr 70	ı Tnr	aag Lys	gac Asp	gct Ala	aca Thi	: Asp	tgg Trp	0 GJ7 1 a <b>a</b> 9	. GJ? a aaa	g aaa / Lys 80	240
ata Ile	gga Gly	cat His	tat Tyr	ttt Phe	≥ Ph∈	aga Arg	gct Ala	aaa Lys	aaa Lys	Ala	att Ile	gct Ala	cca Pro	gta Val	tta Leu	288
act Thr	gat Asp	aca Thr	cca Pro	Asp	cat His	cca Pro	tca Ser	aca Thr 105	Ser	aga Arg	cca Pro	aca Thr	aaa Lys 110	Pro	act Thr	336
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			260					265					270	
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gtt Val	aat L Asr	act Thi	r Met	g agt : Ser	gag Glu	ttg Leu	cat His 280	Let	a gti u Val	agt L Ser	ttt Phe	gaa Glu 285	ı Glr	a gaa n Glu	att Ile	864
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aaa Lys	ata : Ile	a cc e Pr	t at o Il 50	C 111	a gca a Ala	a gga a Gly	a cgg ⁄ Arg	205 1 GJ <sup>7</sup> 1 aaa	GT2	a gcg / Ala	g caa a Glr	a ac	a ga r As; 51	p Gl	a aat u Asn	1536
		51	5	p G1,	y wsF	PIC	520	туг	: Ala	Phe	e Gly	7 Arg 529	g Gli	n Hi	t ggt s Gly	1584
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att Ile	aac Asn	ttt Phe	aad Asr	ctt Leu 565	LIO	gta Val	aca Thr	aat Asn	gat Asp 570	aat Asn	gta Val	ttg Leu	cta Leu	. cca . Pro 575	a aca Thr	1728
gat Asp	cca Pro	att Ile	gga Gly 580	GIY	aaa Lys	aca Thr	gga Gly	atc Ile 585	aac Asn	tat Tyr	act Thr	aat Asn	ata Ile 590	ttt Phe	aat Asn	1776
act Thr	tat Tyr	ggt Gly 595	110	tta Leu	act Thr	gca Ala	tta Leu 600	aat Asn	aat Asn	gta Val	cca Pro	cca Pro 605	gtt Val	tat Tyr	cca Pro	1824
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				,					10					15		
Tyr I	-ys	Tyr	Leu 20	Gly	Pro	Gly A	Asn :	Ser 25	Leu .	Asp	Gln	Gly	Glu 30	Pro	Thr	
Asn I	Pro	Ser 35	Asp	Ala	Ala .	Ala 1	∴уs ( 40	Glu 1	His /	Asp (	Glu i	Ala 45	Tyr	Ala	Ala	
Tyr I	eu . 50	Arg	Ser	Gly	Lys i	Asn I 55	Pro 1	ſyr 1	Leu '	ľyr I	Phe S	Ser	Pro	Ala	Asp	
Gln A	rg 1	Phe	Ile	Asp	Gln '	Thr I	ys A	sp A	Ala 1	Thr <i>1</i> 75	Asp 1	rp (	Gly (	Gly	Lys 80	
Ile G	ly F	His	Tyr	Phe 85	Phe A	Arg A	la L	ys I	ys A 90	la ]	Ile A	Ala 1	Pro '	Val 95	Leu	

- Thr Asp Thr Pro Asp His Pro Ser Thr Ser Arg Pro Thr Lys Pro Thr 100 105 110
- Lys Arg Ser Lys Pro Pro Pro His Ile Phe Ile Asn Leu Ala Lys Lys 115 120 125
- Lys Lys Ala Gly Ala Gly Gln Val Lys Arg Asp Asn Gln Ala Pro Met 130 135 140
- Ser Asp Gly Ala Val Gln Pro Asp Gly Gly Gln Pro Ala Val Arg Asn 145 150 155 160
- Glu Arg Ala Thr Gly Ser Gly Asn Gly Ser Gly Gly Gly Gly Gly 165 170 175
- Gly Ser Gly Gly Val Gly Ile Ser Thr Gly Thr Phe Asn Asn Gln Thr 180 185 190
- Glu Phe Lys Phe Leu Glu Asn Gly Trp Val Glu Ile Thr Ala Asn Ser 195 200 205
- Ser Arg Leu Val His Leu Asn Met Pro Glu Ser Glu Asn Tyr Lys Arg 210 215 220
- Val Val Val Asn Asn Met Asp Lys Thr Ala Val Lys Gly Asn Met Ala 225 230 235 240
- Leu Asp Asp Thr His Val Gln Ile Val Thr Pro Trp Ser Leu Val Asp 245 250 255
- Ala Asn Ala Trp Gly Val Trp Phe Asn Pro Gly Asp Trp Gln Leu Ile 260 265 270
- Val Asn Thr Met Ser Glu Leu His Leu Val Ser Phe Glu Gln Glu Ile 275 280 285
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- Thr Lys Val Tyr Asn Asn Asp Leu Thr Ala Ser Leu Met Val Ala Leu 305 310 315 320
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- Thr Leu Gly Phe Tyr Pro Trp Lys Pro Thr Ile Pro Thr Pro Trp Arg 340 345 350
- Tyr Tyr Phe Gln Trp Asp Arg Thr Leu Ile Pro Ser His Thr Gly Thr 355 360 365
- Ser Gly Thr Pro Thr Asn Ile Tyr His Gly Thr Asp Pro Asp Asp Val 370 375 380
- Gln Phe Tyr Thr Ile Glu Asn Ser Val Pro Val His Leu Leu Arg Thr 385 390 395 400

- Gly Asp Glu Phe Ala Thr Gly Thr Phe Phe Phe Asp Cys Lys Pro Cys 405 410 415
- Arg Leu Thr His Thr Trp Gln Thr Asn Arg Ala Leu Gly Leu Pro Pro 420 425 430
- Phe Leu Asn Ser Leu Pro Gln Ser Glu Gly Ala Thr Asn Phe Gly Asp 435 440 445
- Ile Gly Val Gln Gln Asp Lys Arg Gly Val Thr Gln Met Gly Asn 450 455 460
- Thr Asp Tyr Ile Thr Glu Ala Thr Ile Met Arg Pro Ala Glu Val Gly
  465 470 475 480
- Tyr Ser Ala Pro Tyr Tyr Ser Phe Glu Ala Ser Thr Gln Gly Pro Phe 485 490 495
- Lys Ile Pro Ile Ala Ala Gly Arg Gly Gly Ala Gln Thr Asp Glu Asn 500 505 510
- Gln Ala Asp Gly Asp Pro Arg Tyr Ala Phe Gly Arg Gln His Gly 515 520 525
- Gln Lys Thr Thr Thr Gly Glu Thr Pro Glu Arg Phe Thr Tyr Ile 530 535 540
- Ala His Gln Asp Thr Gly Arg Tyr Pro Ala Gly Asp Trp Ile Gln Asn 545 550 555 560
- Ile Asn Phe Asn Leu Pro Val Thr Asn Asp Asn Val Leu Leu Pro Thr 565 570 575
- Asp Pro Ile Gly Gly Lys Thr Gly Ile Asn Tyr Thr Asn Ile Phe Asn 580 585 590
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aca Thr	Gly	gat Asp	gaa Glu 260	2 1110	t gc ∋ Ala	t aca	agg rGl	a ac y Th 26	r Ph	t tt e Ph	t tt ie Ph	t ga e As	t tg p Cy 27	s Ly	a cca s Pro	816
tgt Cys	aga Arg	cta Leu 275	1111	a cat	aca Thi	a tgo r Trp	g ca o Gli 280	n Th	a aa r As:	c ag n Ar	a gc g Al	a tt a Le 28	u Gl	c tt y Le	a cca u Pro	864
cca Pro	ttt Phe 290	cta Leu	aat Asn	tct Ser	ttg Lei	g cct 1 Pro 295	) GII	a tci n Sei	gaa Gli	a gg u Gl	a gc y Al 30	a Th	t aad r Ası	c tt	t ggt e Gly	912
gat Asp 305	ata Ile	gga Gly	gtt Val	caa Gln	caa Gln 310	ı Asp	aaa Lys	a aga s Arg	a cgt J Arg	t gg g Gl <sub>3</sub> 319	y Va	a act	caa Glr	a ato n Met	g gga = Gly 320	960
-1011		мър	IYI	325	1.111	GIU	Ala	l Thr	330	e Met	: Arg	y Pro	Ala	335		1008
1	~1-		340	FIO	ıyı	TYL	ser	345	GIu	Ala	a Ser	Thr	Gln 350	Gly	cca Pro	1056
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ggt Gly 385	caa Gln	aaa Lys	act Thr	act Thr	aca Thr 390	aca Thr	gga Gly	gaa Glu	aca Thr	cct Pro 395	gag Glu	aga Arg	ttt Phe	aca Thr	tat Tyr 400	1200
ata g Ile i	gca Ala :	cat His	GIII	gat Asp 405	aca Thr	gga Gly	aga Arg	tat Tyr	cca Pro 410	gca Ala	gga Gly	gat Asp	tgg Trp	att Ile 415	caa Gln	1248
aat a Asn I	att a Ile a	1311	ttt Phe 420	aac Asn	ctt Leu	cct Pro	gta Val	aca Thr 425	aat Asn	gat Asp	aat Asn	gta Val	ttg Leu 430	cta Leu	cca Pro	1296
aca o	rab i	cca a Pro 1 135	att (	gga Gly	ggt Gly	Lys	aca Thr 440	gga Gly	atc Ile	aac Asn	tat Tyr	act Thr 445	aat Asn	ata Ile	ttt Phe	1344
aat a Asn T 4	hr T	at ( Tyr (	ggt ( Gly 1	cct Pro I	Leu	act Thr 455	gca Ala	tta Leu	aat Asn	aat Asn	gta Val 460	cca Pro	cca Pro	gtt Val	tat Tyr	1392

Pr 46	O As	it gg sn Gl	gt ca .y Gl	a at n Il	t tg e Tr 47	p As	t aa p Ly	a ga s Gl	a tt u Ph	t ga e As 47	p Th	t ga r As	c p		
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Me	00> t Se 1		p Gl	y Ala	a Val	l Glr	n Pro	o As <sub>l</sub>	9 Gl	y Gl <sub>i</sub>	y Glı	n Pro	o Ala	a Va:	l Arg
Ası	n Gl	u Ar	g Ala 20	a Thr	Gly	sei	Gly	Ası 25	n Gly	y Se:	r Gly	/ Gly	/ Gly 30		y Gly
Gly	/ Gl	y Se: 3!	r Gly 5	/ Gly	v Val	Gly	7 Ile 40	e Sei	Thi	Gly	/ Thi	Phe 45		n Asr	n Gln
Thr	Gl: 50	ı Phe	e Lys	Phe	. Leu	Glu 55	Asn	Gl <sub>y</sub>	Trp	Val	Glu 60		. Thr	: Ala	a Asn
Ser 65	Sei	c Arg	g Leu	Val	His 70	Leu	Asn	Met	Pro	Glu 75	Ser	Glu	Asn	туг	Lys 80
Arg	Va]	Val	Val	Asn 85	Asn	Met	Asp	Lys	Thr 90	Ala	. Val	Lys	Gly	Asn 95	
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Asp	Ala	Asn 115	Ala	Trp	Gly	Val	Trp 120	Phe	Asn	Pro	Gly	Asp 125	Trp	Gln	Leu
Ile	Val 130	Asn	Thr	Met	Ser	Glu 135	Leu	His	Leu	Val	Ser 140	Phe	Glu	Gln	Glu
Ile 145	Phe	Asn	Val	Val	Leu 150	Lys	Thr	Val	Ser	Glu 155	Ser	Ala	Thr	Gln	Pro 160
Pro	Thr	Lys	Val	Tyr 165	Asn	Asn	Asp	Leu	Thr 170	Ala	Ser	Leu	Met	Val 175	Ala
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Thr 225	Ser	Gly	Thr	Pro	Thr .	Asn	Ile	Tyr	His	Gly 235	Thr	Asp	Pro	Asp	Asp 240

cca aat ggt caa att tgg gat aaa gaa ttt gat act gac

1431

Val Gln Phe Tyr Thr Ile Glu Asn Ser Val Pro Val His Leu Leu Arg

245 250 255

Thr Gly Asp Glu Phe Ala Thr Gly Thr Phe Phe Phe Asp Cys Lys Pro 260 265 270

Cys Arg Leu Thr His Thr Trp Gln Thr Asn Arg Ala Leu Gly Leu Pro 275 280 285

Pro Phe Leu Asn Ser Leu Pro Gln Ser Glu Gly Ala Thr Asn Phe Gly 290 295 300

Asp Ile Gly Val Gln Gln Asp Lys Arg Arg Gly Val Thr Gln Met Gly 305 310 315 320

Asn Thr Asp Tyr Ile Thr Glu Ala Thr Ile Met Arg Pro Ala Glu Val 325 330 335

Gly Tyr Ser Ala Pro Tyr Tyr Ser Phe Glu Ala Ser Thr Gln Gly Pro 340 345 350

Phe Lys Ile Pro Ile Ala Ala Gly Arg Gly Gly Ala Gln Thr Asp Glu 355 360 365

Asn Gln Ala Ala Asp Gly Asp Pro Arg Tyr Ala Phe Gly Arg Gln His 370 375 380

Gly Gln Lys Thr Thr Thr Gly Glu Thr Pro Glu Arg Phe Thr Tyr 385 390 395 400

Ile Ala His Gln Asp Thr Gly Arg Tyr Pro Ala Gly Asp Trp Ile Gln 405 410 415

Asn Ile Asn Phe Asn Leu Pro Val Thr Asn Asp Asn Val Leu Leu Pro 420 425 430

Thr Asp Pro Ile Gly Gly Lys Thr Gly Ile Asn Tyr Thr Asn Ile Phe 435 440 445

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cto Lei	c gg ı Gl	t at y Il	C 211C	a gco a Ala	g act	t ggc r Gly	tco Sei 40	c Arc	a cat	t gg s Gl	t aa y As	c gg n Gl 4	y Se	g tc r Se	g gga r Gly	144
tta Leu	a acc Thi	;	a cta g Leu	a gct 1 Ala	aga Arg	a tat g Tyr 55	vaı	tca Ser	ttt Phe	ato	c tg e Tr	p Il	c gt e Va	a ct	a ttc u Phe	192
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gcg Ala	tcc Ser	caa Gln 115	- TTC	gag Glu	gct Ala	aac Asn	gga Gly 120	cca Pro	tcg Ser	act Thr	ttt Phe	tat Tyr 125	Met	tgt Cys	cca Pro	384
cca Pro	cct Pro 130	tca Ser	gga Gly	tct Ser	act Thr	gtc Val 135	gtg Val	cgt Arg	tta Leu	gag Glu	cca Pro 140	cca Pro	cgg Arg	gcc Ala	tgt Cys	432
cca Pro 145	gat Asp	tat Tyr	aaa Lys	cta Leu	ggg Gly 150	aaa Lys	aat Asn	ttt Phe	acc Thr	gag Glu 155	ggt Gly	ata Ile	gct Ala	gta Val	ata Ile 160	480
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aca Thr	acc Thr	aac Asn 195	cga Arg	tat Tyr	aca Thr	gac a Asp 2	agg Arg 200	gtt Val	ccc Pro	gtg Val	aaa Lys	gtt Val 205	caa Gln	gag Glu	att Ile	624
aca (	gat Asp 210	ctc Leu	ata Ile	gat Asp	Arg .	cgg g Arg ( 215	ggt Gly 1	atg Met (	tgc Cys	Leu	tcg Ser 220	aaa Lys	gct Ala	gat Asp	tac Tyr	672
gtt d Val 2	cgt Arg	aac Asn	aat Asn '	tat ( Tyr (	caa Gln	ttt a Phe T	acg ( Thr i	gcc   Ala	ttt : Phe <i>i</i>	gat Asp	cga Arg	gac Asp	gag Glu	gat Asp	ccc Pro	720

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					24	5	5 71	.U P1	.0 8	er	25	r Tr	ır L	eu	Sei	Ar	g Va 2:	al 55	cgt Arg	768
		-	:	260		. 01	u 111	т ту	2	65	гЪ	3 II	e V	al	Leu	Le 27	u As O	gε	ttc Phe	816
		2	75	1			. va	28	0	ys	116	≀ Va	1 G	lu	Glu 285	. Va.	l As	ą	gca Ala	864
	a to g Se 29	0			110	, ry	29.	р Se 5	r Pi	ne	Ala	ı Il	e Se 30	er 00	Thr	Gly	/ As	p	Val	912
30!			_			310	)	s G1	λ Te	eu	Arg	315	9 G3	.у .	Ala	His	Va	1	Glu 320	960
	ac Th	_		<i>3</i> –	325	DEI	nst	, WI	g Pr	ie	330	GIr	ı Il	.e (	Glu	Gly	Ту: 33	r 5	Tyr	1008
	ata O Ile		3	40	.rop	1111	ASL	Tyr	3 4	5	GIÀ	Ala	ı Pr	7 0	/al	Ser 350	Arg	g i	Asn	1056
	ttg Lev	35	5			1113	vaı	360	Va	1 2	Ата	Trp	As	n 7 3	'rp 65	Thr	Pro	> 1	уys	1104
	ggt Gly 370		, ,,	~ \	- <u> </u>	1111	375	Ala	ьy	S 'I	rp	Arg	G1: 38:	ı I O	le	Asp	Glu	ı N	1et	1152
385	ccg Pro					390	261	тĀТ	Arg	3 F	'ne	Thr 395	Ala	a L	ys '	Thr	Ile	4	er 00	1200
	act Thr			4	05	NSII	1111	ser	GIT	1 P 4	ne 10	Glu	Ile	A:	sn A	Arg	Ile 415	A	rg	1248
		1.00	42	0	ıa	1111	пλг	GIU	425	ιA	ia (	Glu	Ala	I.	le A	Asp 130	Arg	Ι	le	1296
tat Tyr	•	435	~,	<b>-</b> 1.	<i>y</i>	Jer	пуѕ	440	нıs	1.	ıe (	GIn	Thr	G]	ly 1 15	hr	Leu	G.	lu	1344
acc Thr	tac Tyr 450	cta Leu	gc Ala	c co	gt g rg (	ат У	gga Gly 455	ttt Phe	cta Leu	a!	ta g le <i>I</i>	Ala	ttc Phe 460	cg Ar	rt c g P	cc ro	atg Met	at I:	cc le	1392

465			<b></b> c	u Ai	47	0	u Ty	r 11	e As	n Gl 47	u Le 5	eu Al	a Ar	g S∈	c aat er Asn 480	
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gta Val	caa Gln	. cga . Arg	act Thr 500	. wr.	a aga	a tc	g gte r Val	c cca l Pro 505	Se:	t aa r Ası	t ca n Gl	a ca n Hi	t ca s Hi 51	s Ar	g tcg g Ser	1536
cgg Arg	cgc Arg	agc Ser 515	1111	ata Ile	ı gaç Glı	ı Gl <sup>7</sup> a add	g ggt 7 Gly 520	TIE	a gaa e Glu	a aco	c gte	g aad l Asi 525	ı Ası	t gc	a tca a Ser	1584
ctc Leu	ctc Leu 530	aag Lys	acc Thr	acc Thr	tca Ser	tct Ser 535	. val	gaa . Glu	tto Phe	gca Ala	a ato Met 540	: Leu	a caa 1 Glr	a tti	gcc Ala	1632
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gaa c Glu L	tt d eu I	JCu,	gtg Val (	gaa Glu	cga Arg	aaa Lys	Leu	att Ile 665	gag Glu	cct Pro	tgc Cys	Thr	gtc Val 670	aat Asn	aat Asn	2016
aag c Lys A	-9 -	at t Yr E 75	ett a Phe I	aag ( Lys )	ttt Phe	GIA .	gca Ala 680	gat : Asp !	tat Tyr	gta Val	Tyr	ttt Phe 685	gag Glu	gat Asp	tat Tyr	2064

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70	5			, Ly.	3 56	71	-	т ге	u GI	u Asj	p Ar 71	g G1 5	u Ph	e Le	u Hi	.s S	er 20
aç Se	gt t er T	at 'yr	aca Thr	cga Arg	a gc g Ala 72	a GI	g ctg u Lei	g gaa 1 Glu	a gai u As <sub>l</sub>	ace 730	r Gl	c cc y Pr	t tt o Ph	t ga e As	c ta p Ty 73	r Se	gc 2208 er
			<b></b>	740	) 9 VT <i>č</i>	, ASI	c caa n Glm	r ref	745	s Ala	ı Lei	ı Ly	s Ph	е Ту: 75	r As O	p I]	Le
ga As	c a p S	gc er	ata Ile 755	val	aga Arg	a gtg g Val	gat Asp	aat Asn 760	ı Asr	ctt Leu	gto Val	ate l Ile	c at e Me 76!	t Arg	t gg g Gl	t at y M∈	g 2304 et
gc Al		at sn 70	ttt Phe	ttt Phe	cag Glr	gga Gly	ctc Leu 775	Gly	gat Asp	gtg Val	Gly	get Ala 780	a Gly	t tto / Phe	gg Gl	c aa y Ly	g 2352 s
gt Va 78	- "	tc al	tta Leu	gly	gct Ala	gcg Ala 790	agt Ser	gcg Ala	gta Val	atc Ile	tca Ser 795	Thr	a gta Val	a tca L Ser	Gly	c gt Va 80	1
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ata Ile	a tt	a eu i	gct Ala	ggc Gly 820	atc Ile	gtc Val	gca Ala	gca Ala	ttc Phe 825	ctg Leu	gca Ala	tat Tyr	cgc Arg	tat Tyr 830	Ile	tci Sei	t 2496 r
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agg Arg	ga Gl	ga uM	tg a let :	116	aaa Lys 885	tat Tyr	atg Met	tcc Ser	Leu	gta Val 890	tcg Ser	gct Ala	atg Met	gag Glu	caa Gln 895	caa Gln	2688
gaa Glu	ca: His	t a s L	y S Z	gcg Ala 1 900	atg Met	aaa Lys	aag Lys .	Asn .	aag Lys 905	ggc Gly	cca Pro	gcg Ala	atc Ile	cta Leu 910	acg Thr	agt Ser	2736
cat	cto	a	ct a	aac a	atg	gcc	ctc (	cgt (	cgc ·	cgt	gga	cct	aaa	tac	caa	cgc	2784

His Leu Thr Asn Met Ala Leu Arg Arg Gly Pro Lys Tyr Gln Arg 915 920 925 ctc aat aat ctt gat agc ggt gat gat act gaa aca aat ctt gtc Leu Asn Asn Leu Asp Ser Gly Asp Asp Thr Glu Thr Asn Leu Val 2829 930 935 <210> 14 <211> 943 <212> PRT <213> Feline herpesvirus 1 <400> 14 Met Ser Thr Arg Gly Asp Leu Gly Lys Arg Arg Arg Gly Ser Arg Trp Gln Gly His Ser Gly Tyr Phe Arg Gln Arg Cys Phe Phe Pro Ser Leu 30 Leu Gly Ile Ala Ala Thr Gly Ser Arg His Gly Asn Gly Ser Ser Gly Leu Thr Arg Leu Ala Arg Tyr Val Ser Phe Ile Trp Ile Val Leu Phe 55 Leu Val Gly Pro Arg Pro Val Glu Gly Gln Ser Gly Ser Thr Ser Glu Gln Pro Arg Arg Thr Val Ala Thr Pro Glu Val Gly Val His His Gln Asn Gln Leu Gln Ile Pro Pro Ile Cys Arg Tyr Glu Glu Ala Leu Arg 100 105 Ala Ser Gln Ile Glu Ala Asn Gly Pro Ser Thr Phe Tyr Met Cys Pro 120 Pro Pro Ser Gly Ser Thr Val Val Arg Leu Glu Pro Pro Arg Ala Cys 130 135 Pro Asp Tyr Lys Leu Gly Lys Asn Phe Thr Glu Gly Ile Ala Val Ile 150 155 Phe Lys Glu Asn Ile Ala Pro Tyr Lys Phe Lys Ala Asn Ile Tyr Tyr 165 170 Lys Asn Ile Ile Met Thr Thr Val Trp Ser Gly Ser Ser Tyr Ala Val 180 Thr Thr Asn Arg Tyr Thr Asp Arg Val Pro Val Lys Val Gln Glu Ile 200 Thr Asp Leu Ile Asp Arg Arg Gly Met Cys Leu Ser Lys Ala Asp Tyr 210 215

Val Arg Asn Asn Tyr Gln Phe Thr Ala Phe Asp Arg Asp Glu Asp Pro

- Arg Glu Leu Pro Leu Lys Pro Pro Ser Ser Thr Leu Ser Arg Val Arg 245 250 255
- Gly Trp His Thr Asn Glu Thr Tyr Thr Lys Ile Val Leu Leu Asp Phe 260 265 270
- His His Ser Gly Thr Ser Val Asn Cys Ile Val Glu Glu Val Asp Ala 275 280 285
- Arg Ser Val Tyr Pro Tyr Asp Ser Phe Ala Ile Ser Thr Gly Asp Val 290 295 300
- Ile His Met Ser Pro Phe Phe Gly Leu Arg Asp Gly Ala His Val Glu 305 310 315 320
- His Thr Ser Tyr Ser Ser Asp Arg Phe Gln Gln Ile Glu Gly Tyr Tyr 325 330 335
- Phe Leu Glu Thr Pro His Val Thr Val Ala Trp Asn Trp Thr Pro Lys 355 360 365
- Ser Gly Arg Val Cys Thr Leu Ala Lys Trp Arg Glu Ile Asp Glu Met 370 375 380
- Leu Pro Met Asn Ile Gly Ser Tyr Arg Phe Thr Ala Lys Thr Ile Ser 385 390 395 400
- Ala Thr Phe Ile Ser Asn Thr Ser Gln Phe Glu Ile Asn Arg Ile Arg 405 410 415
- Leu Gly Asp Cys Ala Thr Lys Glu Ala Ala Glu Ala Ile Asp Arg Ile 420 425 430
- Tyr Lys Ser Lys Tyr Ser Lys Thr His Ile Gln Thr Gly Thr Leu Glu 435 440 445
- Ser Asn Glu Leu Ala Lys Leu Tyr Ile Asn Glu Leu Ala Arg Ser Asn 465 470 475 480
- Arg Thr Val Val Asp Leu Ser Ala Leu Leu Asn Pro Ser Gly Glu Thr 485 490 495
- Val Gln Arg Thr Arg Arg Ser Val Pro Ser Asn Gln His His Arg Ser 500 505 510
- Arg Arg Ser Thr Ile Glu Gly Gly Ile Glu Thr Val Asn Asn Ala Ser 515 520 525
- Leu Leu Lys Thr Thr Ser Ser Val Glu Phe Ala Met Leu Gln Phe Ala

- Tyr Asp Tyr Ile Gln Ala His Val Asn Glu Met Leu Ser Arg Ile Ala 550 555 Thr Ala Trp Cys Thr Leu Gln Asn Arg Glu His Val Leu Trp Thr Glu Thr Leu Lys Leu Asn Pro Gly Gly Val Val Ser Met Ala Leu Glu Arg 580 585 Arg Val Ser Ala Arg Leu Leu Gly Asp Ala Val Ala Val Thr Gln Cys 600 Val Asn Ile Ser Ser Gly His Val Tyr Ile Gln Asn Ser Met Arg Val 615 620 Thr Gly Ser Ser Thr Thr Cys Tyr Ser Arg Pro Leu Val Ser Phe Arg Ala Leu Asn Asp Ser Glu Tyr Ile Glu Gly Gln Leu Gly Glu Asn Asn 650 Glu Leu Leu Val Glu Arg Lys Leu Ile Glu Pro Cys Thr Val Asn Asn 665 Lys Arg Tyr Phe Lys Phe Gly Ala Asp Tyr Val Tyr Phe Glu Asp Tyr Ala Tyr Val Arg Lys Val Pro Leu Ser Glu Ile Glu Leu Ile Ser Ala 690 695 700 Tyr Val Ile Lys Ser Thr Leu Leu Glu Asp Arg Glu Phe Leu His Ser Ser Tyr Thr Arg Ala Glu Leu Glu Asp Thr Gly Pro Phe Asp Tyr Ser 730 Glu Ile Gln Arg Arg Asn Gln Leu His Ala Leu Lys Phe Tyr Asp Ile 745 750 Asp Ser Ile Val Arg Val Asp Asn Asn Leu Val Ile Met Arg Gly Met Ala Asn Phe Phe Gln Gly Leu Gly Asp Val Gly Ala Gly Phe Gly Lys 770 775 Val Val Leu Gly Ala Ala Ser Ala Val Ile Ser Thr Val Ser Gly Val
- Ser Ser Phe Leu Asn Asn Pro Phe Gly Ala Leu Ala Val Gly Leu Leu 805 810 815
- Ile Leu Ala Gly Ile Val Ala Ala Phe Leu Ala Tyr Arg Tyr Ile Ser 820 825 830
- Arg Leu Arg Ala Asn Pro Met Lys Ala Leu Tyr Pro Val Thr Thr Arg

835 840 845

Asn Leu Lys Gln Thr Ala Lys Ser Pro Ala Ser Thr Ala Gly Gly Asp 855 Ser Asp Pro Gly Val Asp Asp Phe Asp Glu Glu Lys Leu Met Gln Ala Arg Glu Met Ile Lys Tyr Met Ser Leu Val Ser Ala Met Glu Gln Gln 885 890 Glu His Lys Ala Met Lys Lys Asn Lys Gly Pro Ala Ile Leu Thr Ser His Leu Thr Asn Met Ala Leu Arg Arg Gly Pro Lys Tyr Gln Arg 920 Leu Asn Asn Leu Asp Ser Gly Asp Asp Thr Glu Thr Asn Leu Val 935 <210> 15 <211> 750 <212> DNA <213> Feline herpesvirus 1 <220> . <221> CDS <222> (1)..(750) <400> 15 atg tcc act cgt ggc gat ctt ggg aag cgg cga cga ggg agt cgt tgg 48 Met Ser Thr Arg Gly Asp Leu Gly Lys Arg Arg Arg Gly Ser Arg Trp cag gga cac agt ggc tat ttt cga cag aga tgt ttt ttc cct tct cta 96 Gln Gly His Ser Gly Tyr Phe Arg Gln Arg Cys Phe Phe Pro Ser Leu 20 ctc ggt att gca gcg act ggc tcc aga cat ggt aac gga tcg tcg gga Leu Gly Ile Ala Ala Thr Gly Ser Arg His Gly Asn Gly Ser Ser Gly 144 tta acc aga cta gct aga tat gtt tca ttt atc tgg atc gta cta ttc Leu Thr Arg Leu Ala Arg Tyr Val Ser Phe Ile Trp Ile Val Leu Phe 55 tta gtc ggt ccc cgt cca gta gag ggt caa tct gga agc aca tcg gaa Leu Val Gly Pro Arg Pro Val Glu Gly Gln Ser Gly Ser Thr Ser Glu 65 caa ccc cgg cgg act gta gct acc cct gag gta ggg gta cac cac caa Gln Pro Arg Arg Thr Val Ala Thr Pro Glu Val Gly Val His His Gln 288

aac caa cta cag atc cca ccg ata tgt cga tat gag gaa gct ctc cgt

90

336

Asn	Gln	Leu	Gln 100	Ile	Pro	Pro	Ile	Cys 105	Arg	ј Туг	Glu	Glu	Ala 110		Arg	
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Leu !	Thr 50	Arg 1	Leu .	Ala	Arg '	Tyr ' 55	Val :	Ser	Phe	Ile	Trp 60	Ile '	Val	Leu	Phe	

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Pro 145	Asp	Tyr	Lys	Leu	Gly 150	Lys	Asn	Phe	Thr	Glu 155		Ile	Ala	Val	Ile 160	
Phe	Lys	Glu	Asn	Ile 165	Ala	Pro	Tyr	Lys	Phe 170	Lys	Ala	Asn	Ile	Tyr 175		
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1584

1602

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Leu Leu Tyr Thr Tyr Leu Gln Phe Gly Thr Ser Ser Thr Thr Ala Val $20 \\ 25 \\ 30$ 

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Ser Met Ser Ala Thr Thr Pro Ile Ser Gln Pro Thr Ser Pro Phe Thr 50 55 60

Thr Pro Thr Arg Arg Ser Thr Asn Ile Ala Thr Ser Ser Ser Thr Thr 65 70 75 80

Gln Ala Ser Gln Pro Thr Ser Thr Leu Thr Thr Leu Thr Arg Ser Ser 85 90 95

Thr Thr Ile Ala Thr Ser Pro Ser Thr Thr Gln Ala Ala Thr Phe Ile 100 105 110

Gly Ser Ser Thr Asp Ser Asn Thr Thr Leu Leu Lys Thr Thr Lys Lys 115

Pro Lys Arg Lys Lys Asn Lys Asn Asn Gly Ala Arg Phe Lys Leu Tyr 130 135 140

Cys Gly Tyr Lys Gly Val Ile Tyr Arg Pro Tyr Phe Ser Pro Leu Gln 145 150 155 160

Leu Asn Cys Thr Leu Pro Thr Glu Pro His Ile Thr Asn Pro Ile Asp 165 170 175

Phe Glu Ile Trp Phe Lys Pro Arg Thr Arg Phe Gly Asp Phe Leu Gly 180 185 190

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- Phe Ser Ser Arg Asn Gly Ser Val Asn Ser Met Asp Leu Gly Asp Ala 210 215 220
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- Pro Lys Ala Met Ser Ala Asp Ile Leu Ile Thr Gly Pro Cys Ile Glu 435 440 445
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- Asp Gly Pro Val Ser Tyr Thr Cys Gln Thr Ile Gly Tyr Pro Pro Ile 465 470 475 480
- Leu Pro Gly Phe Tyr Asp Thr Gln Val Tyr Asp Ala Ser Pro Glu Ile 485 490 495

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aca Thr	ctc Leu	ggg Gly 195		cta Leu	caa Gln	tct Ser	agg Arg 200	1 TTE	cca Pro	a gat Asp	tao Tyi	c aca Thi	: Le	a ta ı Ty:	t aat r Asn	624
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aga t Arg P		acg a Thr 1 355	aaa ( Lys :	agt g Ser V	gta g Val 1	Ala .	ccg ( Pro 1	gac ( Asp '	gtc Val'	tat Tyr '	Tyr	cca Pro 365	cct Pro	act Thr	gtg Val	1104
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	7 Va 37	1 Tł 0	nr Ph	ne Al	a As	р Th	r Ar	g Ala	a Ile	э Су:	s As	p Va 0	ıl Ly	rs Cy	/s V	al
cca Pro 385		g ga g As	ıc gç sp Gl	rg at .y Il	a tc e Se 39	т ге	g at	g tgg t Tr	g aaa D Lys	a att s Ile 395	e Gl	t aa y As	n Ty	c ca r Hi	s L	ta 1200 eu 00
cca Pro	aaa Lys	a go s Al	a at a Me	g ag t Se 40	T AT	t gat a As <u>r</u>	t ata p Ile	a cto e Lev	ato Ile 410	Thr	a ggt	t cc y Pr	g tg o Cy	t at s Il 41	e G	aa 1248 lu
cgt Arg	cca Pro	a gg o Gl	t tt y Le 42	u va	c aa l Ası	c att	cag Glr	g agt n Ser 425	Met	tgt Cys	gat Asp	at Il	a tc e Se 43	r Gl	a ad u Th	cg 1296 nr
gat Asp	gga	2 CC 7 Pro 43	o va	g agi	t tat r Tyi	acc Thr	tgt Cys 440	cag Gln	acc Thr	atc Ile	gga Gly	tac Ty:	r Pr	a cc o Pr	a at o Il	t 1344 Le
cta Leu	ccg Pro 450	01,	a tti y Phe	t tad e Tyi	gac Asp	aca Thr 455	GIn	gtc Val	tac Tyr	gac Asp	gcg Ala 460	Sei	c cct	gaa Gli	a at ı Il	ic 1392 le
gtc Val 465																1401
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- Phe Glu Ile Trp Phe Lys Pro Arg Thr Arg Phe Gly Asp Phe Leu Gly 145 150 155 160
- Asp Lys Glu Asp Phe Val Gly Asn His Thr Arg Thr Ser Ile Leu Leu 165 170 175
- Phe Ser Ser Arg Asn Gly Ser Val Asn Ser Met Asp Leu Gly Asp Ala 180 185 190
- Thr Leu Gly Ile Leu Gln Ser Arg Ile Pro Asp Tyr Thr Leu Tyr Asn 195 200 205
- Ile Pro Ile Gln His Thr Glu Ala Met Ser Leu Gly Ile Lys Ser Val 210 215 220
- Glu Ser Ala Thr Ser Gly Val Tyr Thr Trp Arg Val Tyr Gly Gly Asp 235 230 235
- Val Leu Asn Lys Thr Val Leu Gly Gln Val Asn Val Ser Val Val Ala 245 250 255
- Tyr His Pro Pro Ser Val Asn Leu Thr Pro Arg Ala Ser Leu Phe Asn 260 265 270
- Lys Thr Phe Glu Ala Val Cys Ala Val Ala Asn Tyr Phe Pro Pro Arg 275 280 285
- Ser Thr Lys Leu Thr Trp Tyr Leu Asp Gly Lys Pro Ile Glu Arg Gln 290 295 300
- Tyr Ile Ser Asp Thr Ala Ser Val Trp Ile Asp Gly Leu Ile Thr Arg 305 310 315 320
- Ser Ser Val Leu Ala Ile Pro Thr Thr Glu Thr Asp Ser Glu Lys Pro 325 330 335
- Asp Ile Arg Cys Asp Leu Glu Trp His Glu Ser Pro Val Ser Tyr Lys 340 345 350
- Arg Phe Thr Lys Ser Val Ala Pro Asp Val Tyr Tyr Pro Pro Thr Val
- Ser Val Thr Phe Ala Asp Thr Arg Ala Ile Cys Asp Val Lys Cys Val 370 375 380
- Pro Arg Asp Gly Ile Ser Leu Met Trp Lys Ile Gly Asn Tyr His Leu 385 390 395 400
- Pro Lys Ala Met Ser Ala Asp Ile Leu Ile Thr Gly Pro Cys Ile Glu 405 410 415
- Arg Pro Gly Leu Val Asn Ile Gln Ser Met Cys Asp Ile Ser Glu Thr 420 425 430

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145				c to	15	50	ys i	-10	AIÇ	y Tn	ır A	rg :	Phe	Gly	As	p Pl	ne	Leu 160	480
		_			5	,	<b>41</b> (	этЛ	ASI	1 H1	s TI 0	nr A	lrg	Thr	Se	r Il 17	le :	Leu	528
cta Leu			180	0	J - 1.0	0.	-y 5	GT.	185	AS	n Se	er M	let	Asp	Le: 19(	u Gl O	у	Asp	576
gcg Ala	aca Thr	ctc Leu 195	GJ7 aaa	g at	c ct e Le	a ca u Gl	.11 .	ct er 00	agg Arg	ata Ile	a cc e Pr	a g	sp	tac Tyr 205	aca Thr	tt Le	a t u ]	at Yr	624
aat Asn	att Ile 210	ccc Pro	ata Ile	a caa e Glr	a ca n Hi:	t ac s Th 21	_ 0.	aa lu ,	gcg Ala	ato Met	tc Se	rь	tg eu 20	gga Gly	ato Ile	aa: Ly:	a t	ct	672
gtg ( Val ( 225					230	)	y vo	а <b>.</b> .	тĂТ	Thr	23:	p A: 5	rg V	/al	Tyr	Gly	7 G 2	ly 40	720
gat g Asp G				245		va.	r ne	u c	этХ	250	Va.	l As	n V	/al	Ser	Val 255	. V	al	768
gca t Ala T	_		260		501	vai	. AS	2	65	Tnr	Pro	) Ar	g A	la :	Ser 270	Leu	Pl	1e	816
aat a Asn L	2	75		<b></b>	1114	vai	28	S A 0	ıa '	val	Ala	As	n T	yr 1 85	Phe	Pro	Pr	0	864
cga to Arg So	ec a er T 90	cg a	aaa Lys	cta Leu	aca Thr	tgg Trp 295	ta Ty:	t c	tt g eu <i>P</i>	gac Asp	Gly aaa	aa Ly: 30	s Pi	ca a ro I	ıta :le	gaa Glu	ag Ar	g g	912
caa ta Gln Ty 305	ac a /r I	tt t le S	ca Ser	gat Asp	acg Thr 310	gca Ala	agt Sei	gt Va	ta t	rp	ata Ile 315	gat Asp	gg G	ga c ly L	tc eu	atc Ile	ac Th 32	r	960
aga ag Arg Se	jt to er Se	ct g er V		ttg Leu 325	gct Ala	att Ile	ccg	r ac	ır T	ct hr 30	gaa Glu	aca Thr	a ga As	at t sp S	er (	gag Glu 335	aa. Ly:	a S	1008
cca ga Pro As	t at p Il		ga 1 rg ( 40	tgt Cys .	gat Asp	ttg Leu	gaa Glu	tg Tr 34	рн	at q is (	gaa Glu	agt Ser	cc Pr	o Va	tg t al s	cc Ser	tat Tyi	=	1056
aag ag Lys Ar	a tt g Ph 35	c a ne T1	cg a	aaa a Jys :	agt Ser	vai	gcc Ala 360	cc Pr	g ga	ac g sp V	gtc /al	tat Tyr	ta Ty 36	r Pi	ca c	ct Pro	act Thr	:	1104

	37	0					375	5	r Ari		a 11	.e C;	ys <i>P</i> 80	Asp	Val	. Ly	s (	Cys	115:
385	,			-		390	bei	ne	g ato 1 Met	- Tr	э гу 39	s 1. 5	Te G	ly	Asn	Ту	r F	His 100	1200
cta Leu	cca Pro	a aa D Ly	ıa g		atg Met 105	agt Ser	gct Ala	gat Asp	ata Ile	tete Lev 410	1 11	c ac e Tì	ca g ir G	gt ly	ccg Pro	tg Cys 41	s I	ata Ile	1248
gaa Glu	cgt Arg	cc Pr		gt t ly I 20	tg eu	gtc Val	aac Asn	att Ile	cag Gln 425	Ser	ato Met	g tg t Cy	jt g 's A	sp :	ata Ile 430	tca Ser	ag G	aa lu	1296
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att Ile	cta Leu 450	Pro	g gg o Gl	ya t Y P	tt he '		gac Asp 455	aca Thr	caa Gln	gtc Val	tac Tyr	ga Asj	p Al	g t .a S	cc er	cct Pro	g; G:	aa lu	1392
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-210	. 0.0																		
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- Gly Asp Lys Glu Asp Phe Val Gly Asn His Thr Arg Thr Ser Ile Leu 165 170 175
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- Ala Tyr His Pro Pro Ser Val Asn Leu Thr Pro Arg Ala Ser Leu Phe 260 265 270
- Asn Lys Thr Phe Glu Ala Val Cys Ala Val Ala Asn Tyr Phe Pro Pro 275 280 285
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- Val Pro Arg Asp Gly Ile Ser Leu Met Trp Lys Ile Gly Asn Tyr His 385 390 395 400
- Leu Pro Lys Ala Met Ser Ala Asp Ile Leu Ile Thr Gly Pro Cys Ile 405 410 415
- Glu Arg Pro Gly Leu Val Asn Ile Gln Ser Met Cys Asp Ile Ser Glu

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Ile Leu Pro Gly Phe Tyr Asp Thr Gln Val Tyr Asp Ala Ser Pro Glu 450 455 460

Ile Val Ser 465

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<212> DNA

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<220>

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Lys Tyr Leu Val Cys Thr Ser Ser Leu Thr Thr Thr Pro Lys Thr Thr
20 25 30

acg gtt tat gtg aag gga ttt aat ata cct cca cta cgc tac aat tat 144
Thr Val Tyr Val Lys Gly Phe Asn Ile Pro Pro Leu Arg Tyr Asn Tyr
35 40 45

act caa gcc aga atc gtg cca aaa att ccc cag gcg atg gat ccg aag 192
Thr Gln Ala Arg Ile Val Pro Lys Ile Pro Gln Ala Met Asp Pro Lys
50 55 60

ata aca gct gaa gta cgt tat gta aca tca atg gat tca tgt ggg atg 240

Ile Thr Ala Glu Val Arg Tyr Val Thr Ser Met Asp Ser Cys Gly Met

70 75 80

gtg gca ttg ata tca gag ccg gat ata gac gct act att cga acc ata 288 Val Ala Leu Ile Ser Glu Pro Asp Ile Asp Ala Thr Ile Arg Thr Ile 85 90 95

Caa cta tct caa aaa aaa aca tat aac gcg act ata agt tgg ttt aag 336 Gln Leu Ser Gln Lys Lys Thr Tyr Asn Ala Thr Ile Ser Trp Phe Lys 100 105 110

gta acc cag ggt tgt gaa tac cct atg ttt ctt atg gat atg aga ctt 384
Val Thr Gln Gly Cys Glu Tyr Pro Met Phe Leu Met Asp Met Arg Leu
115 120 125

tgt gat cct aaa cgg gaa ttt gga ata tgt gct tta cgg tcg cct tca 432 Cys Asp Pro Lys Arg Glu Phe Gly Ile Cys Ala Leu Arg Ser Pro Ser

														<b>4 1 0</b>	,					
14	5					15	0	L	y S	тĀт	. M∈	1	'ne 55	Leu	Th:	r A	sp A	Asp	gaa Glu 160	480
					165	5	C 111	u r	10	ATG	17	n P 0	ne	Asn	Glı	n G]	.у (	31n .75	tat Tyr	528
				180			c no	рG.	тÀ	185	ме	t Pi	he '	Tyr	Thr	As 19	g F 0	he	atg Met	576
gta Val	a ca l G1	a c n L 1	ta eu : 95	tct Ser	cca Pro	ac Th	g cc r Pr	a to o C <u>y</u> 20	/5	tgg Trp	tte Phe	c go	ca a la 1	aaa Lys	ccc Pro 205	As	t a p A	ga rg	tac Tyr	624
gaa Glu	ga Gl: 21	ga u I 0	tt d le I	cta Leu	cat His	gaa Glu	tg Tr 21	o cy	jt 7s i	cga Arg	aat Asr	gt 1 Va	ıl I	aaa Lys 220	act Thr	at Il	t g e G	gc ly	ctt Leu	672
225				- 3		230		, <u>.</u> ,	<b>-</b> 1	ιλτ	Trp	23	1 F	'ro	Tyr	Ası	ı Pı	co	Gln 240	720
					245	vaı	Cto	, ne	u 1	ıyr	250	Ту	r A	rg	Thr	His	G] 25	-у 55	Arg	768
			2	60	9	1110	caa Gln	GI	2	65	тте	Ar	g T	yr 1	Asp	Arg 270	Pr	O 1	Ala	816
		27	5	-, .	JC1	GIU	ASP	280	) - L	ys .	Arg	Sei	c As	sn A	Asp 285	Ser	Ar	g (	Sly	864
gaa Glu	290		- 0.	-1 .	. 10	nsii	295	TTE	: A:	sp .	rie	Glu	3 (	n T	.'yr	Thr	Pr	o L	ys	912
aat Asn 305	aat Asn	gto Va	g co l Pr	t a		ata Ile 310	ata Ile	tct Ser	ga As	ac g sp <i>F</i>	gat Asp	gac Asp 315	Va	t c	ct ro	aca Thr	gco Ala	a P	ro 20	960
ccc Pro	aag Lys	ggo	at Me	C 1	at a sn 1	aat Asn	cag Gln	tca Ser	gt Va	T A	tg al	ata Ile	cc Pr	c g	ca a la I	atc Ile	gta Val	L	ta eu	1008
agt Ser (	tgt Cys	ctt Leu	at Il 34		ta ç le A	ıca la:	ctg Leu	att Ile	ct Le 34	eu G	ga ly	gtg Val	at Il	a t e T	yr 1	at Tyr 350	att Ile	ti Le	tg eu	1056
agg (		aag Lys 355	ag	g to	ct c er A	ga i	ser.	act Thr 360	gc Al	a t a T	at ( yr (	caa Gln	ca: Gl:	a ci n Le 36	eu P	ct	ata Ile	at I]	ta Le	1104

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1122

Arg Arg Val Ile Thr Ile Asp Gly Ser Met Phe Tyr Thr Asp Phe Met 185

Leu Gly Leu Ile Met Met Ala Pro Ala Gln Phe Asn Gln Gly Gln Tyr

170

165

Val Gln Leu Ser Pro Thr Pro Cys Trp Phe Ala Lys Pro Asp Arg Tyr

Glu Glu Ile Leu His Glu Trp Cys Arg Asn Val Lys Thr Ile Gly Leu

Asp Gly Ala Arg Asp Tyr His Tyr Tyr Trp Val Pro Tyr Asn Pro Gln 230 235 240

Pro His His Lys Ala Val Leu Leu Tyr Trp Tyr Arg Thr His Gly Arg 250 Glu Pro Pro Val Arg Phe Gln Glu Ala Ile Arg Tyr Asp Arg Pro Ala Ile Pro Ser Gly Ser Glu Asp Ser Lys Arg Ser Asn Asp Ser Arg Gly 280 Glu Ser Ser Gly Pro Asn Trp Ile Asp Ile Glu Asn Tyr Thr Pro Lys Asn Asn Val Pro Ile Ile Ile Ser Asp Asp Val Pro Thr Ala Pro 310 Pro Lys Gly Met Asn Asn Gln Ser Val Val Ile Pro Ala Ile Val Leu Ser Cys Leu Ile Ile Ala Leu Ile Leu Gly Val Ile Tyr Tyr Ile Leu 340 345 Arg Val Lys Arg Ser Arg Ser Thr Ala Tyr Gln Gln Leu Pro Ile Ile 355 His Thr Thr His His Pro 370 <210> 25 <211> 900 <212> DNA <213> Feline herpesvirus 1 <220> <221> CDS <222> (1)..(900) <400> 25 cca aaa aca act acg gtt tat gtg aag gga ttt aat ata cct cca cta Pro Lys Thr Thr Thr Val Tyr Val Lys Gly Phe Asn Ile Pro Pro Leu 48 10 cgc tac aat tat act caa gcc aga atc gtg cca aaa att ccc cag gcg Arg Tyr Asn Tyr Thr Gln Ala Arg Ile Val Pro Lys Ile Pro Gln Ala 96 20 atg gat ccg aag ata aca gct gaa gta cgt tat gta aca tca atg gat Met Asp Pro Lys Ile Thr Ala Glu Val Arg Tyr Val Thr Ser Met Asp 144 35 tca tgt ggg atg gtg gca ttg ata tca gag ccg gat ata gac gct act Ser Cys Gly Met Val Ala Leu Ile Ser Glu Pro Asp Ile Asp Ala Thr 192 50 att cga acc ata caa cta tct caa aaa aaa aca tat aac gcg act ata Ile Arg Thr Ile Gln Leu Ser Gln Lys Lys Thr Tyr Asn Ala Thr Ile 240

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100	0	aaa cgg gaa ttt gga ata tg Lys Arg Glu Phe Gly Ile Cy: 105	s Ala Leu O
115	- 111 11p Deu	gaa cct tta aca aag tat ato Glu Pro Leu Thr Lys Tyr Met 120 125	t Phe Leu
130	135	att atg atg gcc ccg gcc caa Ile Met Met Ala Pro Ala Glr 140	n Phe Asn
145	150	ata acc atc gat ggt tcc atg lle Thr Ile Asp Gly Ser Met 155	Phe Tyr 160
2 33 330	165	ct cca acg cca tgt tgg ttc er Pro Thr Pro Cys Trp Phe 170	Ala Lys 175
180	ord ord fre D	ta cat gaa tgg tgt cga aat eu His Glu Trp Cys Arg Asn 185 190	Val Lys
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tac act cct aaa a Tyr Thr Pro Lys A 275	aat aat gtg cc Asn Asn Val Pr 28	t att ata ata tct gac gat g o Ile Ile Ile Ser Asp Asp 2 0 285	gac gtt 864 Asp Val
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- Ser Cys Gly Met Val Ala Leu Ile Ser Glu Pro Asp Ile Asp Ala Thr 50 55 60
- Ile Arg Thr Ile Gln Leu Ser Gln Lys Lys Thr Tyr Asn Ala Thr Ile
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- Ser Trp Phe Lys Val Thr Gln Gly Cys Glu Tyr Pro Met Phe Leu Met 85 90 95
- Asp Met Arg Leu Cys Asp Pro Lys Arg Glu Phe Gly Ile Cys Ala Leu 100 105 110
- Arg Ser Pro Ser Tyr Trp Leu Glu Pro Leu Thr Lys Tyr Met Phe Leu 115 120 125
- Thr Asp Asp Glu Leu Gly Leu Ile Met Met Ala Pro Ala Gln Phe Asn 130 135 140
- Gln Gly Gln Tyr Arg Arg Val Ile Thr Ile Asp Gly Ser Met Phe Tyr 145 150 155 160
- Thr Asp Phe Met Val Gln Leu Ser Pro Thr Pro Cys Trp Phe Ala Lys 165 170 170
- Pro Asp Arg Tyr Glu Glu Ile Leu His Glu Trp Cys Arg Asn Val Lys
  180 185 190
- Thr Ile Gly Leu Asp Gly Ala Arg Asp Tyr His Tyr Tyr Trp Val Pro
  195 200 205
- Tyr Asn Pro Gln Pro His His Lys Ala Val Leu Leu Tyr Trp Tyr Arg 210 215 220
- Thr His Gly Arg Glu Pro Pro Val Arg Phe Gln Glu Ala Ile Arg Tyr 235 230 235 240
- Asp Arg Pro Ala Ile Pro Ser Gly Ser Glu Asp Ser Lys Arg Ser Asn 245 250 255
- Asp Ser Arg Gly Glu Ser Ser Gly Pro Asn Trp Ile Asp Ile Glu Asn

260 265 270

Tyr Thr Pro Lys Asn Asn Val Pro Ile Ile Ile Ser Asp Asp Val 275 280 280

Pro Thr Ala Pro Pro Lys Gly Met Asn Asn Gln Ser 290 295 300

<210> 27

<211> 759

<212> DNA

<213> Feline leukemia virus

<220>

<221> CDS

<222> (1)..(759)

<400> 27

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  Met Pro Leu Arg Glu Gly Pro Asn Asn Arg Pro Gln Tyr Trp Pro Phe
  1 5 10 15
- tca gct tca gac ctg tat aac tgg aag tcg cat aac ccc cct ttc tcc 96 Ser Ala Ser Asp Leu Tyr Asn Trp Lys Ser His Asn Pro Pro Phe Ser 20 25 30
- caa gac ccc gtg gcc cta act aac cta att gag tcc att tta gtg acg 144
  Gln Asp Pro Val Ala Leu Thr Asn Leu Ile Glu Ser Ile Leu Val Thr
  35 40 45
- cat caa cca acc tgg gac gac tgc cag caa ctc ttg cag gca ctc ctg 192
  His Gln Pro Thr Trp Asp Asp Cys Gln Gln Leu Leu Gln Ala Leu Leu
  50 55 60
- aca ggc gaa gaa agg caa agg gtc ctt ctt gag gcc cga aag cag gtt 240
  Thr Gly Glu Glu Arg Gln Arg Val Leu Leu Glu Ala Arg Lys Gln Val
  65 70 75 80
- cca ggc gag gac gga cgg cca acc cag ctg ccc aat gtc att gac gaa 288
  Pro Gly Glu Asp Gly Arg Pro Thr Gln Leu Pro Asn Val Ile Asp Glu
  85 90 95
- gct ttc ccc ttg acc cgt ccc aac tgg gat ttt gct acg ccg gca ggt 336 Ala Phe Pro Leu Thr Arg Pro Asn Trp Asp Phe Ala Thr Pro Ala Gly 100 105 110
- agg gag cac cta cgc ctt tat cgc cag ttg ctg tta gcg ggt ctc cgc 384 Arg Glu His Leu Arg Leu Tyr Arg Gln Leu Leu Leu Ala Gly Leu Arg 115 120 125
- ggg gct gca aga cgc ccc act aat ttg gca cag gta aag caa gtt gta 432 Gly Ala Ala Arg Arg Pro Thr Asn Leu Ala Gln Val Lys Gln Val Val 130 135 140
- caa ggg aaa gag gaa acg cca gcc tca ttc tta gaa aga tta aaa gag 480

Gln Gly Lys Glu Glu Thr Pro Ala Ser Phe Leu Glu Arg Leu Lys Glu 145 150 155 160	
gct tac aga atg tat act ccc tat gac cct gag gac cca ggg cag gct Ala Tyr Arg Met Tyr Thr Pro Tyr Asp Pro Glu Asp Pro Gly Gln Ala 165 170 175	528
gct agt gtt atc ctg tcc ttt atc tac cag tct agc ccg gac ata aga Ala Ser Val Ile Leu Ser Phe Ile Tyr Gln Ser Ser Pro Asp Ile Arg 180 185 190	576
aat aag tta caa agg cta gaa ggc cta cag ggg ttc aca ctg tct gat Asn Lys Leu Gln Arg Leu Glu Gly Leu Gln Gly Phe Thr Leu Ser Asp 195 200 205	624
ttg cta aaa gag gca gaa aag ata tac aac aaa agg gag acc cca gag Leu Leu Lys Glu Ala Glu Lys Ile Tyr Asn Lys Arg Glu Thr Pro Glu 210 215 220	672
gaa agg gaa gaa aga tta tgg cag cgg cag gaa gaa aga gat aaa aag Glu Arg Glu Glu Arg Leu Trp Gln Arg Gln Glu Glu Arg Asp Lys Lys 235 240	720
cgc cat aag gag atg act aag gtc tgt gag aat tct agc Arg His Lys Glu Met Thr Lys Val Cys Glu Asn Ser Ser 245 250	759
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Met Pro Leu Arg Glu Gly Pro Asn Asn Arg Pro Gln Tyr Trp Pro Phe 1 5 10 15	
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Gln Asp Pro Val Ala Leu Thr Asn Leu Ile Glu Ser Ile Leu Val Thr 35 40 45	
His Gln Pro Thr Trp Asp Asp Cys Gln Gln Leu Leu Gln Ala Leu Leu 50 55 60	
Thr Gly Glu Glu Arg Gln Arg Val Leu Leu Glu Ala Arg Lys Gln Val 65 70 75 80	
Pro Gly Glu Asp Gly Arg Pro Thr Gln Leu Pro Asn Val Ile Asp Glu 85 90 95	
Ala Phe Pro Leu Thr Arg Pro Asn Trp Asp Phe Ala Thr Pro Ala Gly 100 105 110	
Arg Glu His Leu Arg Leu Tyr Arg Gln Leu Leu Leu Ala Gly Leu Arg	

Gly Ala Ala Arg Arg Pro Thr Asn Leu Ala Gln Val Lys Gln Val Val 135 140 Gln Gly Lys Glu Glu Thr Pro Ala Ser Phe Leu Glu Arg Leu Lys Glu 150 Ala Tyr Arg Met Tyr Thr Pro Tyr Asp Pro Glu Asp Pro Gly Gln Ala 170 Ala Ser Val Ile Leu Ser Phe Ile Tyr Gln Ser Ser Pro Asp Ile Arg 185 Asn Lys Leu Gln Arg Leu Glu Gly Leu Gln Gly Phe Thr Leu Ser Asp 200 Leu Leu Lys Glu Ala Glu Lys Ile Tyr Asn Lys Arg Glu Thr Pro Glu 215 220 Glu Arg Glu Glu Arg Leu Trp Gln Arg Gln Glu Glu Arg Asp Lys 230 Arg His Lys Glu Met Thr Lys Val Cys Glu Asn Ser Ser 245 250 <210> 29 <211> 1830 <212> DNA <213> Feline leukemia virus <220> <221> CDS <222> (1)..(1830) <400> 29 atg gcc aat cct agt cca ccc caa atg tat aat gta act tgg gta ata Met Ala Asn Pro Ser Pro Pro Gln Met Tyr Asn Val Thr Trp Val Ile 48 acc aat gta caa acc aac caa gct aat gcc acc tct atg tta gga Thr Asn Val Gln Thr Asn Thr Gln Ala Asn Ala Thr Ser Met Leu Gly 20 acc tta acc gat gtc tac cct acc cta cat gtt gac tta tgt gac cta Thr Leu Thr Asp Val Tyr Pro Thr Leu His Val Asp Leu Cys Asp Leu 144 40 gtg gga gac acc tgg gaa cct atg gtc cta agc cca acc ggg tac cct Val Gly Asp Thr Trp Glu Pro Met Val Leu Ser Pro Thr Gly Tyr Pro 192 ccc tca aaa tat gga tgt aaa act aca gat aga aaa aaa cag caa cag Pro Ser Lys Tyr Gly Cys Lys Thr Thr Asp Arg Lys Lys Gln Gln 240 70

				tac Tyr 85		e Cy 5	110	. GI	.y ni	o O	rg F	ro S	Ser 1	Leu	Gl <sub>y</sub> 95	Pro	
			100		1	Cly	VIO	10	n As 5	ip G.	ry b	he C	ys A	la .10	Ala	Trp	
gga Gly	tgt Cys	gaa Glu 115	acc Thr	acc Thr	gga Gly	gaa Glu	gct Ala 120		g tg o Tr	g aa p Ly	ag c /s P	ro S	cc t er S 25	cc	tca Ser	tgg Trp	384
gac Asp	tat Tyr 130	atc Ile	aca Thr	gta Val	aaa Lys	aga Arg 135	GJA aaa	agt Sei	ag Se:	t ca r Gl	n As	ac a sn A:	at a sn A	ac sn (	tgt Cys	gag Glu	432
gga Gly 145	aaa Lys	tgc Cys	aac Asn	ccc Pro	ctg Leu 150	att Ile	ttg Leu	caç Glr	tto Phe	c ac Th	r Gl	ag aa Ln Ly	ag g /s G	ly I	aaa Ys	caa Gln 160	480
gcc t Ala S	tct Ser '	tgg Trp	gac Asp	gga Gly 165	cct Pro	aag Lys	atg Met	tgg Trp	gga Gly 170	ле:	g cg u Ar	g Le	a ta eu Ty	r A	gt rg 75	aca Thr	528
gga t Gly T	at g Tyr <i>I</i>	gac Asp	cct Pro 180	atc Ile .	gcc Ala	tta Leu 1	ttc Phe	acg Thr 185	gta Val	tco Sei	c cg	g cg g Ar	g gt g Va 19	l S	ca er	acc Thr	576
att a Ile T	icg o hr F 1	ccg Pro :	cct Pro	cag ( Gln <i>l</i>	gca a Ala 1	166	gga Sly 200	cca Pro	gac Asp	cta Leu	a gt	c tt 1 Le 20	u Pr	t g o A	at sp (	caa Gln	624
aaa c Lys P 2	cc c ro P 10	ca t	Ser A	cga d Arg (		ect o Ser G	aa a ln '	aca Thr	Gl <sup>A</sup> aaa	tcc Ser	aaa Lys 220	s Val	g gc	g ao a Tl	cc (	cag Gln	672
agg co Arg P 225	cc c ro G	aa a ln T	icg a		aa a lu s 30	igc g Ser A	cc d la I	cca Pro	agg Arg	tct Ser 235	gtt Val	gco Ala	c cc	c ac	ır 1	acc Thr 240	720
gtg gg Val G]	gt co ly P:	cc a ro L		gg a rg I 45	tt g le G	gg a ly T	cc g hr G	TA	gat Asp 250	agg Arg	tta Leu	ata Ile	aat Asr	tt Le 25	u V	ıta Val	768
caa gg Gln Gl	gg gc	ca t la T 2	ac c yr L 60	ta g eu A	cc t la L	ta aa eu As	SII A	rcc la '	acc Thr	gac Asp	ccc Pro	aac Asn	aaa Lys 270	Th	t a r L	aa ys	816
gac tg Asp Cy	rt to rs Tr 27	_	tc t eu C	gc ci ys Le	tg g eu Va	tt to al Se 28	T A	ga d rg 1	cca Pro	ccc Pro	tat Tyr	tac Tyr 285	gaa Glu	gg G1	g a y I	tt le	864
gca at Ala Il 29	c tt e Le 0	a gg	gt aa Ly As	ac ta sn Ty	ac ag /r Se 29	T AS	ic ca	aa a ln 1	aca a Thr i	Asn	cct Pro 300	ccc Pro	cca Pro	tc: Se:	c to	gc Ys	912
cta tc	t at	t co	g co	ca ca	ıc aa	ıg ct	g ad	cc a	ıta t	cct	aaa	gta	tca	ggg	j ca	aa	960

Le 30	u Se 5	r I]	le Pr	o Pr	o Hi 31	s Ly	s Le	u Th	r Il	Le Se	er Ly 15	ys Va	al Se	er Gl	ly Gln 320	
gga Gly	a ct	g tg u Cy	ıc at 's Il	a gg e Gl 32	A 111	t gt r Val	t cc l Pr	t aa o Ly	g ac s Th 33	r Hi	ac ca .s Gl	ag go In Al	et tt la Le	g tg eu Cy 33	ıc aat rs Asn 5	1008
aag Lys	g acg	g ca r Hi	c ca s Gl 34	11 01	a ca y Hi	t aca s Thi	a gg c Gl	g gc y Ala 34	a As	c ta p Ty	it cg r Ar	ra gc g Al	c gc a Al 35	a Pr	g cgg o Arg	1056
tat Tyr	cta Le	a gc ı Al 35	~ 11 <u>1</u>	c cc	c aa o Asi	t ggc n Gly	ace Thi	c TA	t tg r Tr	g gc p Al	c tg a Cy	t aa s As 36	n Th	t gg r Gl	a ctc y Leu	1104
acc Thr	Pro	y Cy	c at	t tco	c ato	g gcg Ala 375	val	g cto L Leu	c aai 1 Asi	t tt n Le	g ac u Th	r Se	t ga r As	t tt p Ph	t tgt e Cys	1152
gtc Val 385		ato Ile	c gaa	a tta ı Lev	tgg Trp 390	PIO	aga Arg	ı gtg y Val	g act	t tac Ty: 39!	r Hi	t caa	a cce	c gaa	tat Tyr 400	1200
gtg Val	tac Tyr	aca Thi	a cat	ttt Phe 405	HIC	aaa Lys	gct Ala	ggc	agg Arg 410	y Phe	c cga e Arg	a aga g Arg	a gaa g Glu	a cca ı Pro 415	a ata O Ile	1248
tca Ser	cta Leu	act Thr	gtt Val 420	. лта	ctc Leu	atg Met	ttg Leu	gga Gly 425	gga Gly	cto Leu	act Thr	gta Val	a ggg Gly 430	/ Gly	ata Ile	1296
gcc Ala	gcg Ala	ggg Gly 435	val	gga Gly	aca Thr	GJÀ aaa	act Thr 440	aaa Lys	gcc Ala	ctc Leu	ctt Leu	gaa Glu 445	Thr	gcc Ala	cag Gln	1344
ttc Phe	aga Arg 450	caa Gln	cta Leu	caa Gln	atg Met	gcc Ala 455	atg Met	cac His	aca Thr	gac Asp	atc Ile 460	Gln	gcc Ala	cta Leu	gaa Glu	1392
gag Glu 465	tca Ser	att Ile	agt Ser	gcc Ala	tta Leu 470	gaa Glu	aag Lys	tcc Ser	ctg Leu	acc Thr 475	tcc Ser	ctt Leu	tct Ser	gaa Glu	gta Val 480	1440
gtc Val	tta Leu	caa Gln	aac Asn	aga Arg 485	cgg Arg	ggc Gly	cta Leu	gat Asp	att Ile 490	cta Leu	ttc Phe	cta Leu	caa Gln	gag Glu 495	gga Gly	1488
GJA aaa	ctc Leu	tgt Cys	gcc Ala 500	gca Ala	tta Leu	aaa Lys	gaa Glu	gaa Glu 505	tgt Cys	tgc Cys	ttc Phe	tat Tyr	gcg Ala 510	gat Asp	cac His	1536
acc (	1	ctc Leu 515	gtc Val	cga Arg	gac Asp	aat a Asn l	atg Met 520	gct Ala	aaa Lys	tta Leu	aga Arg	gaa Glu 525	aga Arg	cta Leu	aaa Lys	1584
cag d Gln <i>l</i>	egg Arg (	caa Gln	caa Gln	ctg Leu	ttt Phe	gac ( Asp (	tcc Ser	caa Gln	cag Gln	gga Gly	tgg Trp	ttt Phe	gaa Glu	gga Gly	tgg Trp	1632

530		535	540	
ttc aac agg Phe Asn Arg 545	tcc ccc tgg Ser Pro Trp 550	ttt aca acc Phe Thr Thr	cta att tcc tcc Leu Ile Ser Ser 555	c att atg ggc 1680 c Ile Met Gly 560
	565	red ile red	ctc ttc ggc cca Leu Phe Gly Pro 570	Tyr Ile Leu 575
75 24	580	585	aga ata tct gtg Arg Ile Ser Val	Val Gln Ala 590
tta att tta Leu Ile Leu 595	acc caa cag f Thr Gln Gln 7	tac caa cag Tyr Gln Gln 600	ata aag caa tac Ile Lys Gln Tyr 605	gat ccg gac 1824 Asp Pro Asp
cga cca Arg Pro 610				1830
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1	5 5	ro Gln Met 7	Tyr Asn Val Thr 10	Trp Val Ile 15
	20	25	asn Ala Thr Ser	30
Thr Leu Thr A	Asp Val Tyr P	ro Thr Leu H 40	is Val Asp Leu 45	Cys Asp Leu
Val Gly Asp T	Thr Tro Glu Pi	ro Met Val I	On Con Day W	<b>-</b> 1

Val Gly Asp Thr Trp Glu Pro Met Val Leu Ser Pro Thr Gly Tyr Pro 50

Pro Ser Lys Tyr Gly Cys Lys Thr Thr Asp Arg Lys Lys Gln Gln Gln

Thr Tyr Pro Phe Tyr Val Cys Pro Gly His Arg Pro Ser Leu Gly Pro 85

Lys Gly Thr His Cys Gly Gly Ala Gln Asp Gly Phe Cys Ala Ala Trp 100 110

Gly Cys Glu Thr Thr Gly Glu Ala Trp Trp Lys Pro Ser Ser Trp 115

Asp Tyr Ile Thr Val Lys Arg Gly Ser Ser Gln Asn Asn Cys Glu 130 135

Gly Lys Cys Asn Pro Leu Ile Leu Gln Phe Thr Gln Lys Gly Lys Gln

- Ala Ser Trp Asp Gly Pro Lys Met Trp Gly Leu Arg Leu Tyr Arg Thr 165 170 175
- Gly Tyr Asp Pro Ile Ala Leu Phe Thr Val Ser Arg Arg Val Ser Thr 180 185 190
- Ile Thr Pro Pro Gln Ala Met Gly Pro Asp Leu Val Leu Pro Asp Gln 195 200 205
- Lys Pro Pro Ser Arg Gln Ser Gln Thr Gly Ser Lys Val Ala Thr Gln
  210 215 220
- Arg Pro Gln Thr Asn Glu Ser Ala Pro Arg Ser Val Ala Pro Thr Thr 225 230 235 240
- Val Gly Pro Lys Arg Ile Gly Thr Gly Asp Arg Leu Ile Asn Leu Val 245 250 255
- Gln Gly Ala Tyr Leu Ala Leu Asn Ala Thr Asp Pro Asn Lys Thr Lys 260 265 270
- Asp Cys Trp Leu Cys Leu Val Ser Arg Pro Pro Tyr Tyr Glu Gly Ile 275 280 285
- Ala Ile Leu Gly Asn Tyr Ser Asn Gln Thr Asn Pro Pro Pro Ser Cys 290 295 300
- Leu Ser Ile Pro Pro His Lys Leu Thr Ile Ser Lys Val Ser Gly Gln 305 310 315 320
- Gly Leu Cys Ile Gly Thr Val Pro Lys Thr His Gln Ala Leu Cys Asn 325 330 335
- Lys Thr His Gln Gly His Thr Gly Ala Asp Tyr Arg Ala Ala Pro Arg 340 345 350
- Tyr Leu Ala Ala Pro Asn Gly Thr Tyr Trp Ala Cys Asn Thr Gly Leu 355 360 365
- Thr Pro Cys Ile Ser Met Ala Val Leu Asn Leu Thr Ser Asp Phe Cys 370 375 380
- Val Leu Ile Glu Leu Trp Pro Arg Val Thr Tyr His Gln Pro Glu Tyr 385 390 395 400
- Val Tyr Thr His Phe Ala Lys Ala Gly Arg Phe Arg Arg Glu Pro Ile 405 410 415
- Ser Leu Thr Val Ala Leu Met Leu Gly Gly Leu Thr Val Gly Gly Ile 420 425 430
- Ala Ala Gly Val Gly Thr Gly Thr Lys Ala Leu Leu Glu Thr Ala Gln 435 440 445
- Phe Arg Gln Leu Gln Met Ala Met His Thr Asp Ile Gln Ala Leu Glu

Glu Ser Ile Ser Ala Leu Glu Lys Ser Leu Thr Ser Leu Ser Glu Val 470 475 Val Leu Gln Asn Arg Gly Leu Asp Ile Leu Phe Leu Gln Glu Gly Gly Leu Cys Ala Ala Leu Lys Glu Glu Cys Cys Phe Tyr Ala Asp His 505 Thr Gly Leu Val Arg Asp Asn Met Ala Lys Leu Arg Glu Arg Leu Lys 520 Gln Arg Gln Gln Leu Phe Asp Ser Gln Gln Gly Trp Phe Glu Gly Trp 535 540 Phe Asn Arg Ser Pro Trp Phe Thr Thr Leu Ile Ser Ser Ile Met Gly 550 Pro Leu Leu Leu Leu Leu Leu Leu Phe Gly Pro Tyr Ile Leu 570 Asn Arg Leu Val Gln Phe Val Lys Asp Arg Ile Ser Val Val Gln Ala 585 Leu Ile Leu Thr Gln Gln Tyr Gln Gln Ile Lys Gln Tyr Asp Pro Asp 600 Arg Pro 610 <210> 31 <211> 1833 <212> DNA <213> Feline leukemia virus <220> <221> CDS <222> (1)..(1833) <400> 31 atg gag cac cta cgc ctt tat cgc cag ttg ctg tta gcg ggt ctc cgc Met Glu His Leu Arg Leu Tyr Arg Gln Leu Leu Ala Gly Leu Arg 15 ggg gct gca aga cac ccc act aat ttg gca cag gtt aag caa ttt tta Gly Ala Ala Arg His Pro Thr Asn Leu Ala Gln Val Lys Gln Phe Leu 96 25 caa ggg aaa gaa gaa acg cca gcc tca ttc tta gaa aga tta aaa gag Gln Gly Lys Glu Glu Thr Pro Ala Ser Phe Leu Glu Arg Leu Lys Glu 144 gct tac cga atg tat act ccc tat gac cct gag gac cca ggg cag gct

Ala	Tyr 50	Arg	Met	Tyr	Thr	Pro 55	Tyr	Asp	Pro	Glu	Asp 60	Pro	Gly	Gln	Ala	
gct Ala 65	agt Ser	gtt Val	atc Ile	ctg Leu	tcc Ser 70	ttt Phe	atc Ile	tac Tyr	cag Gln	tct Ser 75	agc Ser	ccg Pro	gac Asp	ata Ile	aga Arg 80	240
aat Asn	aag Lys	tta Leu	caa Gln	agg Arg 85	cta Leu	gaa Glu	ggc Gly	cta Leu	cag Gln 90	GJA aaa	ttc Phe	aca Thr	ctg Leu	tct Ser 95	gat Asp	288
	cta Leu															336
	agg Arg															384
	cat His 130													_		432
	gat Asp															480
	ctg Leu															528
	cgc Arg															576
	ctc Leu			-	-	_	-			-				_		624
	gta Val 210			_				_						_		672
	acc Thr															720
	gac Asp															768
-	cca Pro										_				~	816
	aaa Lys															864

275	280	285

			cca Pro									912
			tgg Trp 310									960
			tgg Trp									1008
			gag Glu									1056
			caa Gln									1104
			aca Thr							_	_	1152
			acc Thr 390									1200
			caa Gln			_						1248
			cag Gln					_	_			1296
-	_		acc Thr	 				~			_	1344
			gta Val		-		_			-		1392
			aaa Lys 470									1440
			att Ile									1488
			tgc Cys									1536

515	520	tgc ata ggg act gtt cct aag acc Cys Ile Gly Thr Val Pro Lys Thr 525	1584
cac cag gct ttg tgo His Gln Ala Leu Cys 530	aat aag acg o Asn Lys Thr F 535	cac cag gga cat aca ggg gcg gac His Gln Gly His Thr Gly Ala Asp 540	1632
545	550	gcc gcc ccc aat ggc acc tat tgg Ala Ala Pro Asn Gly Thr Tyr Trp 555 560	1680
565	204 III F10 C	gc att tcc atg gcg gtg ctc aat ys Ile Ser Met Ala Val Leu Asn 570	1728
ttg acc tct gat ttt Leu Thr Ser Asp Phe 580	olo and pen I	tc gaa tta tgg ccc aga gtg act le Glu Leu Trp Pro Arg Val Thr 85 590	1776
tac cat caa ccc gaa Tyr His Gln Pro Glu 595	tat gtg tac ad Tyr Val Tyr T 600	ca cat ttt gcc aaa gct ggc agg nr His Phe Ala Lys Ala Gly Arg 605	1824
ttc cga aga Phe Arg Arg 610			1833
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<400> 32			
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Gly Ala Ala Arg His : 20	Pro Thr Asn Le	u Ala Gln Val Lys Gln Phe Leu 5 30	
Gln Gly Lys Glu Glu 35	Thr Pro Ala Ser 40	r Phe Leu Glu Arg Leu Lys Glu 45	
Ala Tyr Arg Met Tyr 1 50	hr Pro Tyr Asp 55	Pro Glu Asp Pro Gly Gln Ala 60	
	er Phe Ile Tyr 70	Gln Ser Ser Pro Asp Ile Arg 75 80	
		Gln Gly Phe Thr Leu Ser Asp 90 95 Asn Lys Arg Glu Thr Pro Glu	

- Glu Arg Glu Glu Arg Leu Trp Gln Arg Gln Glu Glu Arg Asp Lys Lys 115 120 125
- Arg His Lys Glu Met Thr Lys Val Leu Ala Thr Val Val Ala Gln Asn 130 135 140
- Arg Asp Lys Asp Arg Glu Glu Ser Lys Leu Gly Asp Gln Arg Lys Ile 145 150 155 160
- Pro Leu Gly Lys Asp Gln Cys Ala Tyr Cys Lys Glu Lys Gly His Trp 165 170 175
- Val Arg Asp Cys Pro Asn Arg Pro Arg Lys Lys Pro Ala Asn Ser Thr 180 185 190
- Leu Leu Asn Leu Glu Asp Met Ala Asn Pro Ser Pro Pro Gln Met Tyr 195 200 205
- Asn Val Thr Trp Val Ile Thr Asn Val Gln Thr Asn Thr Gln Ala Asn 210 215 220
- Ala Thr Ser Met Leu Gly Thr Leu Thr Asp Val Tyr Pro Thr Leu His 225 230 235 240
- Val Asp Leu Cys Asp Leu Val Gly Asp Thr Trp Glu Pro Met Val Leu 245 250 255
- Ser Pro Thr Gly Tyr Pro Pro Ser Lys Tyr Gly Cys Lys Thr Thr Asp 260 265 270
- Arg Lys Lys Gln Gln Gln Thr Tyr Pro Phe Tyr Val Cys Pro Gly His 275 280 285
- Arg Pro Ser Leu Gly Pro Lys Gly Thr His Cys Gly Gly Ala Gln Asp 290 295 300
- Gly Phe Cys Ala Ala Trp Gly Cys Glu Thr Thr Gly Glu Ala Trp Trp 305 310 315 320
- Lys Pro Ser Ser Ser Trp Asp Tyr Ile Thr Val Lys Arg Gly Ser Ser 325 330 335
- Gln Asn Asn Cys Glu Gly Lys Cys Asn Pro Leu Ile Leu Gln Phe 340 345 . 350
- Thr Gln Lys Gly Lys Gln Ala Ser Trp Asp Gly Pro Lys Met Trp Gly 355 360 365
- Leu Arg Leu Tyr Arg Thr Gly Tyr Asp Pro Ile Ala Leu Phe Thr Val 370 375 380
- Ser Arg Arg Val Ser Thr Ile Thr Pro Pro Gln Ala Met Gly Pro Asp 395 390 395
- Leu Val Leu Pro Asp Gln Lys Pro Pro Ser Arg Gln Ser Gln Thr Gly 405 410 415

Ser Lys Val Ala Thr Gln Arg Pro Gln Thr Asn Glu Ser Ala Pro Arg 425 Ser Val Ala Pro Thr Thr Val Gly Pro Lys Arg Ile Gly Thr Gly Asp Arg Leu Ile Asn Leu Val Gln Gly Ala Tyr Leu Ala Leu Asn Ala Thr 455 Asp Pro Asn Lys Thr Lys Asp Cys Trp Leu Cys Leu Val Ser Arg Pro Pro Tyr Tyr Glu Gly Ile Ala Ile Leu Gly Asn Tyr Ser Asn Gln Thr 490 Asn Pro Pro Pro Ser Cys Leu Ser Ile Pro Pro His Lys Leu Thr Ile 505 Ser Lys Val Ser Gly Gln Gly Leu Cys Ile Gly Thr Val Pro Lys Thr 520 His Gln Ala Leu Cys Asn Lys Thr His Gln Gly His Thr Gly Ala Asp 535 Tyr Arg Ala Ala Pro Arg Tyr Leu Ala Ala Pro Asn Gly Thr Tyr Trp 560 Ala Cys Asn Thr Gly Leu Thr Pro Cys Ile Ser Met Ala Val Leu Asn 565 570 Leu Thr Ser Asp Phe Cys Val Leu Ile Glu Leu Trp Pro Arg Val Thr 585 Tyr His Gln Pro Glu Tyr Val Tyr Thr His Phe Ala Lys Ala Gly Arg 600 605 Phe Arg Arg 610 <210> 33 <211> 1812 <212> DNA <213> canine distemper virus <220> <221> CDS <222> (1)..(1812) <400> 33 atg ctc ccc tac caa gac aag gtg ggt gcc ttc tac aag gat aat gca Met Leu Pro Tyr Gln Asp Lys Val Gly Ala Phe Tyr Lys Asp Asn Ala 10 aga gcc aat tca acc aag ctg tcc tta gtg aca gaa gga cat ggg ggc Arg Ala Asn Ser Thr Lys Leu Ser Leu Val Thr Glu Gly His Gly Gly

20	25	30

				ttg Leu								144
				gct Ala								192
				ttt Phe 70								240
				cac His								288
				gag Glu								336
				atc Ile		_					_	384
				cgc Arg								432
				ttt Phe 150								480
-		-	_	gca Ala	-					_		528
	_		_	ata Ile			-	-	-	~ ~	_	576
				gtt Val								624
				tca Ser			_	_		-		672
				aaa Lys 230								720
				cga Arg								768

					gac Asp											816
					tcc Ser											864
					tcc Ser											912
tat Tyr 305	cat His	gac Asp	agc Ser	agt Ser	ggt Gly 310	tca Ser	caa Gln	gat Asp	ggt Gly	att Ile 315	cta Leu	gta Val	gtg Val	aca Thr	ctg Leu 320	960
					aca Thr											1008
					atg Met											1056
					att Ile											1104
					caa Gln											1152
					tgc Cys 390											1200
		_			tat Tyr			-					_	_	_	1248
					aac Asn											1296
					gat Asp											1344
					ccc Pro											1392
					gac Asp 470											1440

ttt gcg ccc agg gaa tca agt gga aat tgt tat tta cct att caa aca Phe Ala Pro Arg Glu Ser Ser Gly Asn Cys Tyr Leu Pro Ile Gln Thr 485 490 495	1488
tct caa att aga gat aga gat gtc ctc att gag tcc aat ata gtg gtg Ser Gln Ile Arg Asp Arg Asp Val Leu Ile Glu Ser Asn Ile Val Val 500 505 510	1536
ttg cct aca cag agt att aga tat gtc ata gca acg tat gac ata tca Leu Pro Thr Gln Ser Ile Arg Tyr Val Ile Ala Thr Tyr Asp Ile Ser 515 520 525	1584
cga agt gat cat gct att gtt tat tat gtt tat gac cca atc cgg acg Arg Ser Asp His Ala Ile Val Tyr Tyr Val Tyr Asp Pro Ile Arg Thr 530 535 540	1632
att tct tat acg cac cca ttt aga cta act acc aag ggt aga cct gat  Ile Ser Tyr Thr His Pro Phe Arg Leu Thr Thr Lys Gly Arg Pro Asp  545 550 560	1680
ttc cta agg att gaa tgt ttt gtg tgg gat gac aat ttg tgg tgt cac Phe Leu Arg Ile Glu Cys Phe Val Trp Asp Asp Asn Leu Trp Cys His 565 570 575	1728
caa ttt tac aga ttc gag gct gac atc gcc aac tct aca acc agt gtt Gln Phe Tyr Arg Phe Glu Ala Asp Ile Ala Asn Ser Thr Thr Ser Val 580 585 590	1776
gag aat tta gtc cgt ata aga ttc tca tgt aac cgt Glu Asn Leu Val Arg Ile Arg Phe Ser Cys Asn Arg 595 600	1812
<210> 34 <211> 604 <212> PRT <213> canine distemper virus	
<pre>&lt;400&gt; 34 Met Leu Pro Tyr Gln Asp Lys Val Gly Ala Phe Tyr Lys Asp Asn Ala 1</pre>	
15	
Arg Ala Asn Ser Thr Lys Leu Ser Leu Val Thr Glu Gly His Gly Gly 20 25 30	
Arg Arg Pro Pro Tyr Leu Leu Phe Val Leu Leu Ile Leu Leu Val Gly 35 40 45	
Ile Leu Ala Leu Leu Ala Ile Thr Gly Val Arg Phe His Gln Val Ser	
Thr Ser Asn Met Glu Phe Ser Arg Leu Leu Lys Glu Asp Met Glu Lys 65 70 75 80	
Ser Glu Ala Val His His Gln Val Ile Asp Val Leu Thr Pro Leu Phe 85 90 95	

- Lys Ile Ile Gly Asp Glu Ile Gly Leu Arg Leu Pro Gln Lys Leu Asn 100 105 110
- Glu Ile Lys Gln Phe Ile Leu Gln Lys Thr Asn Phe Phe Asn Pro Asn 115 120 125
- Arg Glu Phe Asp Phe Arg Asp Leu His Trp Cys Ile Asn Pro Pro Ser 130 140
- Thr Val Lys Val Asn Phe Thr Asn Tyr Cys Glu Ser Ile Gly Ile Arg 145 150 155 160
- Lys Ala Ile Ala Ser Ala Ala Asn Pro Ile Leu Leu Ser Ala Leu Ser 165 170 175
- Gly Gly Arg Gly Asp Ile Phe Pro Pro His Arg Cys Ser Gly Ala Thr 180 185 190
- Thr Ser Val Gly Lys Val Phe Pro Leu Ser Val Ser Leu Ser Met Ser 195 200 205
- Leu Ile Ser Arg Thr Ser Glu Val Ile Asn Met Leu Thr Ala Ile Ser 210 215 220
- Asp Gly Val Tyr Gly Lys Thr Tyr Leu Leu Val Pro Asp Asp Ile Glu 225 230 235 240
- Arg Glu Phe Asp Thr Arg Glu Ile Arg Val Phe Glu Ile Gly Phe Ile  $245 \\ 250 \\ 255$
- Lys Arg Trp Leu Asn Asp Met Pro Leu Leu Gln Thr Thr Asn Tyr Met 260 265 270
- Val Leu Pro Lys Asn Ser Lys Ala Lys Val Cys Thr Ile Ala Val Gly 275 280 285
- Glu Leu Thr Leu Ala Ser Leu Cys Val Glu Glu Ser Thr Val Leu Leu 290 295 300
- Tyr His Asp Ser Ser Gly Ser Gln Asp Gly Ile Leu Val Val Thr Leu 305 310 315 320
- Gly Ile Phe Trp Ala Thr Pro Met Asp His Ile Glu Glu Val Ile Pro 325 330 335
- Val Ala His Pro Ser Met Lys Lys Ile His Ile Thr Asn His Arg Gly 340 345 350
- Phe Ile Lys Asp Ser Ile Ala Thr Trp Met Val Pro Ala Leu Ala Ser 355 360 365
- Glu Lys Gln Glu Glu Gln Lys Gly Cys Leu Glu Ser Ala Cys Gln Arg 370 375 380
- Lys Thr Tyr Pro Met Cys Asn Gln Ala Ser Trp Glu Pro Phe Gly Gly 385 390 395 400

Val Asp Leu Gln Leu Asn Ile Ser Phe Thr Tyr Gly Pro Val Ile Leu Asn Gly Asp Gly Met Asp Tyr Tyr Glu Ser Pro Leu Leu Asn Ser Gly 440 Trp Leu Thr Ile Pro Pro Lys Asp Gly Thr Ile Ser Gly Leu Ile Asn Lys Ala Gly Arg Gly Asp Gln Phe Thr Val Leu Pro His Val Leu Thr 475 Phe Ala Pro Arg Glu Ser Ser Gly Asn Cys Tyr Leu Pro Ile Gln Thr 490 Ser Gln Ile Arg Asp Arg Asp Val Leu Ile Glu Ser Asn Ile Val Val Leu Pro Thr Gln Ser Ile Arg Tyr Val Ile Ala Thr Tyr Asp Ile Ser 520 525 Arg Ser Asp His Ala Ile Val Tyr Tyr Val Tyr Asp Pro Ile Arg Thr Ile Ser Tyr Thr His Pro Phe Arg Leu Thr Thr Lys Gly Arg Pro Asp 555 Phe Leu Arg Ile Glu Cys Phe Val Trp Asp Asp Asn Leu Trp Cys His Gln Phe Tyr Arg Phe Glu Ala Asp Ile Ala Asn Ser Thr Thr Ser Val 585 590 Glu Asn Leu Val Arg Ile Arg Phe Ser Cys Asn Arg 595 600 <210> 35 <211> 1986 <212> DNA <213> canine distemper virus <220> <221> CDS <222> (1)..(1986) <400> 35 atg cac agg gga atc ccc aaa agc tcc aaa acc caa aca cat acc caa Met His Arg Gly Ile Pro Lys Ser Ser Lys Thr Gln Thr His Thr Gln 10 caa gac cgc ccc cca caa ccc agc acc gaa ctc gaa gag acc agg acc Gln Asp Arg Pro Pro Gln Pro Ser Thr Glu Leu Glu Glu Thr Arg Thr 96

Arg Gln Leu Pro Ser Tyr Gly Arg Leu Thr Leu Pro Leu Asp Ala Ser

	20	25		30	
			gct cag cga Ala Gln Arg		
			tcc tac acc of Ser Tyr Thr 60		
			ttg aag aac Leu Lys Asn 75		
		_	ata cca gag Ile Pro Glu 90		
Gly Ala Arg			caa ccc aat g Gln Pro Asn		
			tgg tgc ctc ( Trp Cys Leu (		
	-		cat tgg gat a His Trp Asp 1	_	
		_	cat tac aag a His Tyr Lys : 155	_	
	-	-	ttg atc cct a Leu Ile Pro 2 170	-	
Ile Glu Asn	Cys Thr Lys	Ala Glu Leu	ggt gag tat g Gly Glu Tyr	Glu Lys Leu	
			gct ttg act Ala Leu Thr		
			tca ggt agg a Ser Gly Arg 220		-
			gct tta gga Ala Leu Gly 235		-
			cat caa tcc . His Gln Ser . 250		

caa Gln	gca Ala	atc Ile	caa Gln 260	tct Ser	ctt Leu	aga Arg	acc Thr	agc Ser 265	ctt Leu	gaa Glu	cag Gln	tct Ser	aac Asn 270	aaa Lys	gct Ala	816
	gaa Glu															864
	gtc Val 290															912
	tca Ser															960
	tat Tyr															1008
	tca Ser															1056
	att Ile															1104
	gca Ala 370															1152
	ctt Leu															1200
	gaa Glu															1248
	ata Ile															1296
	aat Asn								_				-	_		1344
	tca Ser 450			_		_	_	_			_			_	-	1392
	ctc Leu				-				_				_	_		1440

acc ttg gta tct Thr Leu Val Ser					1488
aat atc gtc gca Asn Ile Val Ala 500					1536
agc aca att att Ser Thr Ile Ile 515					1584
tcc gat acc tgc Ser Asp Thr Cys 530					1632
gga ggc agg caa Gly Gly Arg Gln 545					1680
ggc cct gct ata Gly Pro Ala Ile					1728
aac gcc ctt aag Asn Ala Leu Lys 580					1776
aac cag atc ctt Asn Gln Ile Leu 595		•			1824
ctc ctc agc gtt Leu Leu Ser Val 610					1872
ctg att tac tgt Leu Ile Tyr Cys 625					1920
act aag gtc gat Thr Lys Val Asp				_	1968
tcc tat gtg aga Ser Tyr Val Arg 660					1986
<210> 36 <211> 662 <212> PRT <213> canine distemper virus					
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- Gln Asp Arg Pro Pro Gln Pro Ser Thr Glu Leu Glu Glu Thr Arg Thr
  20 25 30
- Ser Arg Ala Arg His Ser Thr Thr Ser Ala Gln Arg Ser Thr His Tyr 35 40 45
- Asp Pro Arg Thr Ser Asp Arg Pro Val Ser Tyr Thr Met Asn Arg Thr 50 55 60
- Arg Ser Arg Lys Gln Thr Ser His Arg Leu Lys Asn Ile Pro Val His 65 70 75 80
- Gly Asn His Glu Ala Thr Ile Gln His Ile Pro Glu Ser Val Ser Lys 85 90 95
- Gly Ala Arg Ser Gln Ile Glu Arg Arg Gln Pro Asn Ala Ile Asn Ser 100 105 110
- Gly Ser His Cys Thr Trp Leu Val Leu Trp Cys Leu Gly Met Ala Ser 115 120 125
- Leu Phe Leu Cys Ser Lys Ala Gln Ile His Trp Asp Asn Leu Ser Thr 130 140
- Ile Gly Ile Ile Gly Thr Asp Asn Val His Tyr Lys Ile Met Thr Arg 145 150 155 160
- Pro Ser His Gln Tyr Leu Val Ile Lys Leu Ile Pro Asn Ala Ser Leu 165 170 175
- Ile Glu Asn Cys Thr Lys Ala Glu Leu Gly Glu Tyr Glu Lys Leu Leu 180 185 190
- Asn Ser Val Leu Glu Pro Ile Asn Gln Ala Leu Thr Leu Met Thr Lys 195 200 205
- Asn Val Lys Pro Leu Gln Ser Leu Gly Ser Gly Arg Arg Gln Arg Arg 210 215 220
- Phe Ala Gly Val Val Leu Ala Gly Val Ala Leu Gly Val Ala Thr Ala 225 230 235 240
- Ala Gln Ile Thr Ala Gly Ile Ala Leu His Gln Ser Asn Leu Asn Ala 245 250 255
- Gln Ala Ile Gln Ser Leu Arg Thr Ser Leu Glu Gln Ser Asn Lys Ala 260 265 270
- Ile Glu Glu Ile Arg Glu Ala Thr Gln Glu Thr Val Ile Ala Val Gln 275 280 285
- Gly Val Gln Asp Tyr Val Asn Asn Glu Leu Val Pro Ala Met Gln His 290 295 300
- Met Ser Cys Glu Leu Val Gly Gln Arg Leu Gly Leu Arg Leu Leu Arg 305 310 315 320

- Tyr Tyr Thr Glu Leu Leu Ser Ile Phe Gly Pro Ser Leu Arg Asp Pro 325 330 335
- Ile Ser Ala Glu Ile Ser Ile Gln Ala Leu Ile Tyr Ala Leu Gly Gly 340 345 350
- Glu Ile His Lys Ile Leu Glu Lys Leu Gly Tyr Ser Gly Ser Asp Met 355 360 365
- Ile Ala Ile Leu Glu Ser Arg Gly Ile Lys Thr Lys Ile Thr His Val 370 375 380
- Asp Leu Pro Gly Lys Phe Ile Ile Leu Ser Ile Ser Tyr Pro Thr Leu 385 390 395 400
- Ser Glu Val Lys Gly Val Ile Val His Arg Leu Glu Ala Val Ser Tyr 405 410 415
- Asn Ile Gly Ser Gln Glu Trp Tyr Thr Thr Val Pro Arg Tyr Ile Ala 420 425 430
- Thr Asn Gly Tyr Leu Ile Ser Asn Phe Asp Glu Ser Ser Cys Val Phe 435 440 445
- Val Ser Glu Ser Ala Ile Cys Ser Gln Asn Ser Leu Tyr Pro Met Ser 450 455 460
- Pro Leu Leu Gln Gln Cys Ile Arg Gly Asp Thr Ser Ser Cys Ala Arg 465 470 475 480
- Thr Leu Val Ser Gly Thr Met Gly Asn Lys Phe Ile Leu Ser Lys Gly 485 490 495
- Asn Ile Val Ala Asn Cys Ala Ser Ile Leu Cys Lys Cys Tyr Ser Thr 500 505 510
- Ser Thr Ile Ile Asn Gln Ser Pro Asp Lys Leu Leu Thr Phe Ile Ala 515 520 525
- Ser Asp Thr Cys Pro Leu Val Glu Ile Asp Gly Ala Thr Ile Gln Val 530 540
- Gly Gly Arg Gln Tyr Pro Asp Met Val Tyr Glu Gly Lys Val Ala Leu 545 550 555 560
- Gly Pro Ala Ile Ser Leu Asp Arg Leu Asp Val Gly Thr Asn Leu Gly
  565 570 575
- Asn Ala Leu Lys Lys Leu Asp Asp Ala Lys Val Leu Ile Asp Ser Ser 580 585 590
- Asn Gln Ile Leu Glu Thr Val Arg Arg Ser Ser Phe Asn Phe Gly Ser 595 600 605
- Leu Leu Ser Val Pro Ile Leu Ser Cys Thr Ala Leu Ala Leu Leu Leu 610 620

Leu Ile Tyr Cys Cys Lys Arg Arg Tyr Gln Gln Thr Leu Lys Gln His 625 630 635 640

Thr Lys Val Asp Pro Ala Phe Lys Pro Asp Leu Thr Gly Thr Ser Lys 645 650 655

Ser Tyr Val Arg Ser Leu 660